
TUFTS TECHNOLOGY SERVICES
TRAINING & DOCUMENTATION DEPARTMENT

Field:	PurchID	VendorID	VendorName	StaffID
Table:	tblPurchases	tblPurchases	tblPurchases	tblPurchases
Sort:				
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:			Like [Which Vendor?]	
or:				

ACCESS 2010: CREATING QUERIES AND REPORTS

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COURSE GOALS AND OBJECTIVES

Welcome to Access 2010: Creating Queries and Reports. The goal of this class is for you to learn how to create and apply queries to analyze and modify data in a departmental database, including producing a report.

These goals will be met by completing the following:

- Creating and Modifying Select Queries using the Query Wizard and Query Design View
- Adjusting, Sorting, and Adding Criteria to Queries
- Producing Action Queries: Update and Delete Queries
- Employing a Parameter Query to Categorize Results
- Constructing Wildcards in Queries
- Composing and Editing a Report

SELECT QUERIES

A query is a tool used to define a particular group of records. Think of a query as a request or a way to draw out information, an analysis tool. For example, “Show me a listing of all the purchases by a specific DeptID.”

Queries are more flexible and more expansive in their capabilities than filtering with the most significant difference being that queries can draw data from more than one table while filters manipulate data from only one table.

When you create a query, you select fields from a list. You can select specific records by creating criteria that control which records you display. You “run” your query by activating the Run tool. The result of your query is called a recordset or dynaset (recordset with dynamic properties).

Queries quite commonly become the basis for reports. Once a subset of data is queried, it can then be reported on.

There are several different types of queries, but all serve the same purpose - to get answers to questions about the data that is stored in a database. The most common query is the Select query, or informational query. There are also Action queries, which change or modify data, such as a Delete query or Update query. We'll begin by crafting Select queries, create some Action queries, and finish with building another kind of query, a Parameter query.

CREATING A QUERY USING THE SIMPLE QUERY WIZARD

ACTIVITY: CREATING (AND MODIFYING) A SELECT QUERY USING THE SIMPLE QUERY WIZARD

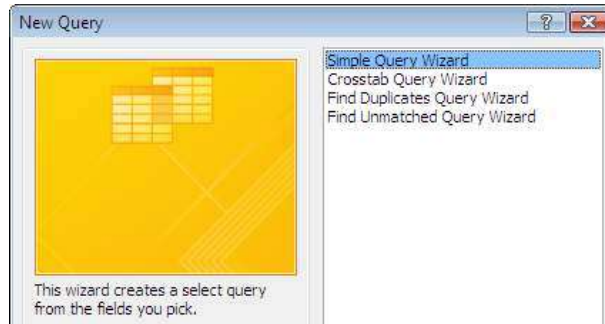
Access provides a **Simple Query Wizard**, an ideal starting place for creating queries, especially for new users. The Simple Query Wizard creates queries that retrieve data from fields that you specify from one or more tables or queries. If you want, the wizard can also sum, count, or average values for groups of records or for all records. Using the wizard you can't limit the records it retrieves by setting criteria. However, this can be done after the query is created.

Using the Simple Query Wizard, we will create a query that isolates five of the nine fields from the Purchases table for reporting purposes. We'll then sort our query results and add specific DeptID criteria to further refine the results. Next, we will move or adjust query fields and hide query fields. Lastly, we'll create the same query from scratch.

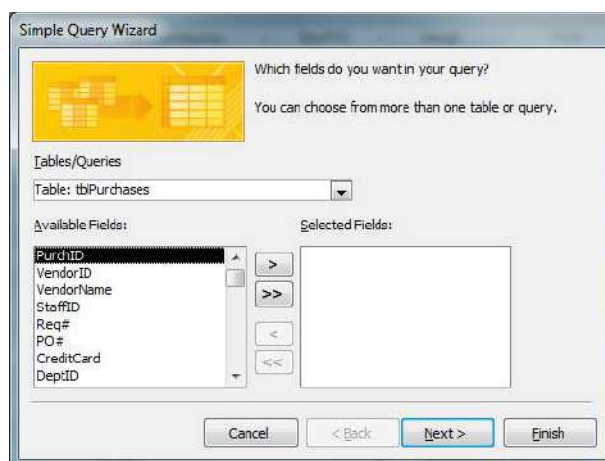
1. In the class files folder, open the DepartmentalQ database.
2. From the Navigation Pane, open the **tblPurchases** table.
3. On the Ribbon, click the **Create tab**.



4. In the Queries group, click the **Query Wizard tool**. The New Query window opens.



5. Check to make sure that Simple Query Wizard is selected and click **OK**. The next step of the wizard displays.

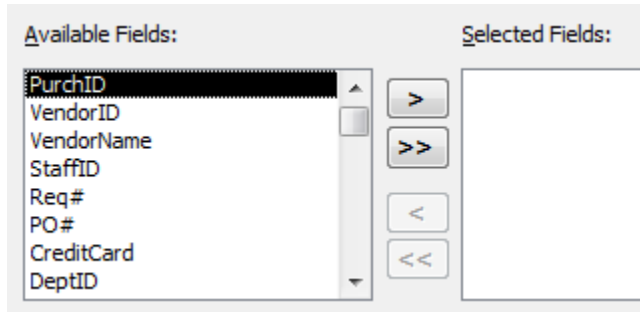


In the Tables/Query field, choose the tables and/or queries that you wish to access in your query. (The down-arrow offers additional choices).

Because we have opened the tblPurchases table, it is pre-selected.

6. In the Tables/Queries field, accept the default, **Table: tblPurchases**.

All the fields for your selected table or query will appear in the Available Fields box.

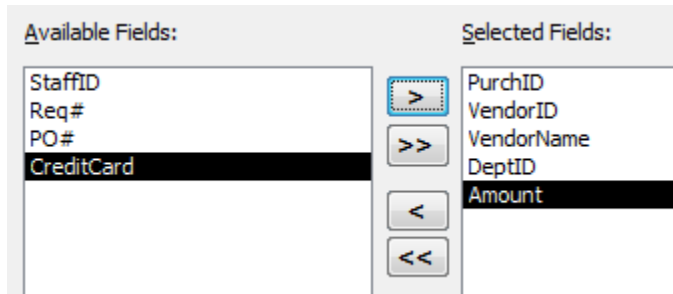


7. In the Available Fields area, click once to select the **PurchID** field.
8. Click the **single, right-pointing arrow**. The PurchID field is added to the query (Selected Fields).

The double right-pointing arrows select all the fields while the left-pointing arrows remove any selected fields.

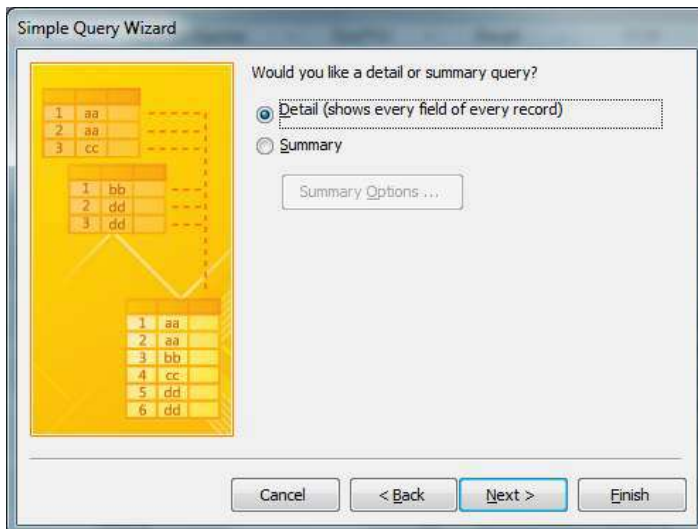
You can also double-click on a field to move the field to the Selected Fields area.

9. Add four more fields: **VendorID**, **VendorName**, **DeptID**, and **Amount**.



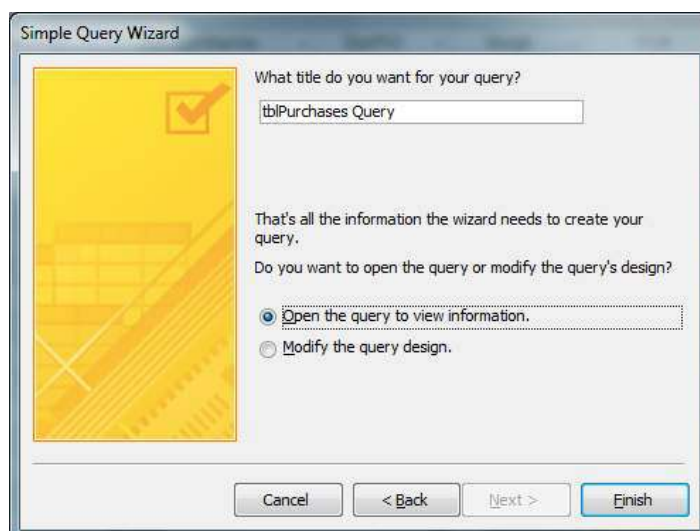
10. Click **Next**. The next step of the query opens.

This step appears because of the Number data type that characterizes the Amount field. If none of your fields are the Number data type, this step of the wizard will not appear.



11. Accept the default Detail option, so that every field of every record shows, and click **Next**. The last step of the query opens.

A final window appears prompting you to name your query and asks whether you want to view your query results, or modify your query in Design View.



12. Title the query **qryPurchases**.

13. Accept the default **“Open the query to view information.”** The query will open in Datasheet View vs. Design View (Design View allows modifications to the query design).
14. Click **Finish**. The query results appear in datasheet format and the qryPurchases query is added to the Navigation Pane.

PurchID	VendorID	VendorName	DeptID	Amount
3496	100	Exeter Group	C800180	2,139.00
3669	210	Cogent	C800310	2,715.40
6389	220	James Foundation	C800250	4,500.00
6390	220	James Foundation	C800250	10,000.00
6903	230	Computer Associates	C800180	5,754.00
6904	240	Merrill Consultants	C800180	1,500.00

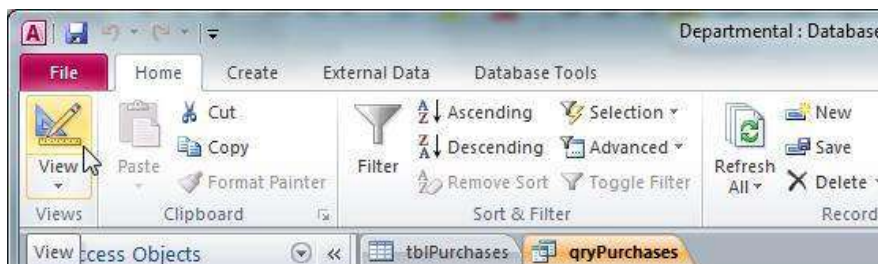
This select query reflects a subset of the original table data, but does not change or manipulate the data. The five fields we selected are displayed, sorted by the primary key PurchID. The query still reflects parts of all records from the Purchases table.

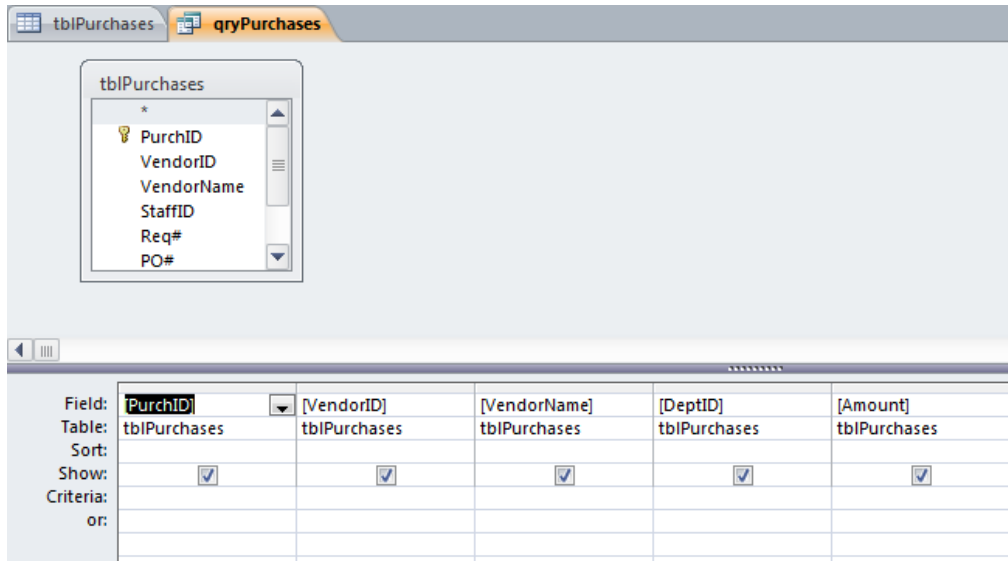
MODIFYING AN EXISTING QUERY

ACTIVITY: MODIFYING A SELECT QUERY BY SORTING AND ADDING CRITERIA

Once a query is created, modifications may need to be made. We will continue to narrow down our returning records by first adjusting the query to display records by alphabetized DeptID, for easier lookup. Secondly, we will add criteria to further refine the sort so that the records for only one particular DeptID (C800250), that has been requested, will display. Changes to a query’s design are performed in Design View.

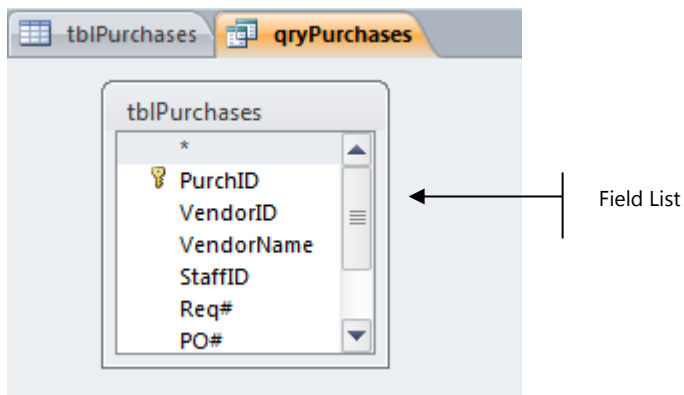
1. On the Ribbon, on the Home tab, click the **View** tool. The query displays in Design View.





The design structure of the query is now visible. Queries can be created from scratch in Design View, which we will do later in this section.

The Query Design window is divided into two panes that work together to make a query. The **Field List** is the upper-half of the screen. Its purpose is to show the tables or queries chosen for the query and all fields in each of the tables or queries. As tables or queries are added to the Field List any relationships will be shown. Each table/query in the list includes each field, plus one extra at the top which is represented by an asterisk. The asterisk at the top of each table/query in the Field List represents *every* field in the table/query.



The lower portion of the window is called the **Design Grid**. The design grid is where all of the query specifications are entered and adjusted so that the query operations occur. The Select query formats the grid to look as it does below:

Field:	[PurchID]	[VendorID]	[VendorName]	[DeptID]	[Amount]
Table:	tblPurchases	tblPurchases	tblPurchases	tblPurchases	tblPurchases
Sort:					
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:					
or:					

The grid is dynamic and will change slightly depending on the type of query being created. The most common grid configuration is found in the Select query. The grid components are listed below:

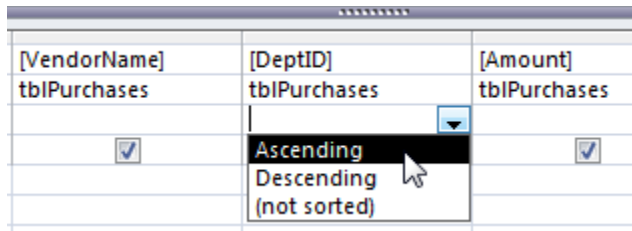
Component	Description
Field	This is where the fields are entered.
Table	The table displays the name of the table the field came from. This is extremely helpful when creating a multi-table query.
Sort	Each field in the Design Grid can be sorted. You will determine which field(s) and which direction: Ascending, Descending, or Not Sorted.
Show	By clicking in the Show checkbox, you are toggling whether the field will show in the dynaset or not.
Criteria	This is where you enter specific criteria, indicating what information you want to see in the dynaset. For example: "I want to see just the records for DeptID C800250."
or	The or rows are used when searching for more than one item in a field. For example: "I want PurchIDs 6910 or 6917."

To sort or alphabetize the query or list by DeptID, we will need to sort by DeptID in ascending order.

SORTING A QUERY

The Purchases query is currently sorted by the primary key PurchID. This is the default sorting behavior. We would like to make a change and sort by DeptID in ascending order so that we can focus on particular orders by department.

1. In Design View in the DeptID field, click in the third row down, the **Sort row**. A down-arrow appears.
2. Click the down-arrow. Three sort choices display.
3. Select **Ascending**.



To view the updated sort:

4. On the Ribbon, on the Design tab, click the **Run** tool. The query results appear sorted in A to Z order by DeptID.



VendorID	VendorName	DeptID	Amount
130	Staples	C800130	204.59
150	Oracle	C800145	5,276.16
200	BMC Software	C800150	1,829.26
250	Dell	C800155	204.44
270	GSMI	C800170	695.00
160	APTARE	C800170	1,700.00
170	Continental Resources	C800170	4,838.10

Please note that when performing a Select query, if you make changes to the data in the query results *all changes will be reflected in the original table*.

By searching or querying data that meets particular criteria, you could make changes to the dynaset to update the original data. For example, if a DeptID is changing, you could pull all of the appropriate department records and then change them as a group.

5. **Save** the query to save the design changes.

ADDING CRITERIA TO A QUERY

When you want to limit the results of a query based on the values in a field, you use query criteria. For example, if you want only a listing of a specific department's orders, you would add that DeptID to the DeptID criteria field. Access then selects only records where the value of the DeptIDs satisfy that criterion. The ability to add query criteria is a powerful feature.

We will limit this query to return just C800250 DeptIDs.

1. Switch back to Design View, and in the design grid, locate the Criteria field for the DeptID field.

Field:	[VendorName]	[DeptID]	[Amount]
Table:	tblPurchases	tblPurchases	tblPurchases
Sort:		Ascending	
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:			

2. In the Criteria field, type C800250. Case does not matter.
3. On the Ribbon, click **Run**. The query runs, returning the sixteen records that match the specific DeptID criteria.

PurchID	VendorID	VendorName	DeptID	Amount
6925	140	ATT	C800250	29.99
6390	220	James Foundation	C800250	10,000.00
6912	110	ASTD	C800250	199.00
6913	110	ASTD	C800250	1,095.00
6917	140	ATT	C800250	29.99
6922	140	ATT	C800250	29.99
6389	220	James Foundation	C800250	4,500.00
6924	140	ATT	C800250	29.99
6935	140	ATT	C800250	97.63
6929	140	ATT	C800250	29.99
6930	140	ATT	C800250	29.99
6931	140	ATT	C800250	29.99
6932	140	ATT	C800250	29.99
6933	140	ATT	C800250	99.58
6934	140	ATT	C800250	97.63
6923	140	ATT	C800250	29.99

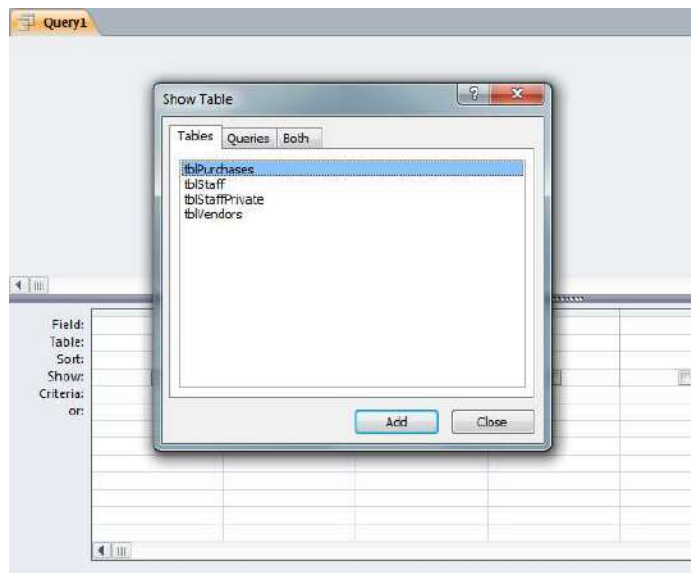
4. To return to Design View, click the **View** tool on the Home tab.
5. Remove or delete the C800250 criteria from the DeptID criteria field.
6. On the Ribbon, click **Run**. The query runs, returning all records again.
7. **Save** and **close** the qryPurchases query.


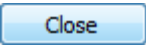
CREATING A QUERY IN DESIGN VIEW

ACTIVITY: CREATING A SELECT QUERY IN DESIGN VIEW

We will create the same query from the Purchases table, but this time without the aid of the Query Wizard. It will isolate the same fields: PurchID, VendorID, VendorName, DeptID, and Amount.

1. **Close** the tblPurchases table.
2. On the Ribbon, click the **Create tab**.
3. On the Create tab, in the Queries group, click the **Query Design** tool. Access displays a blank design grid and the Show Table window to allow you to select the table(s) you wish to query.



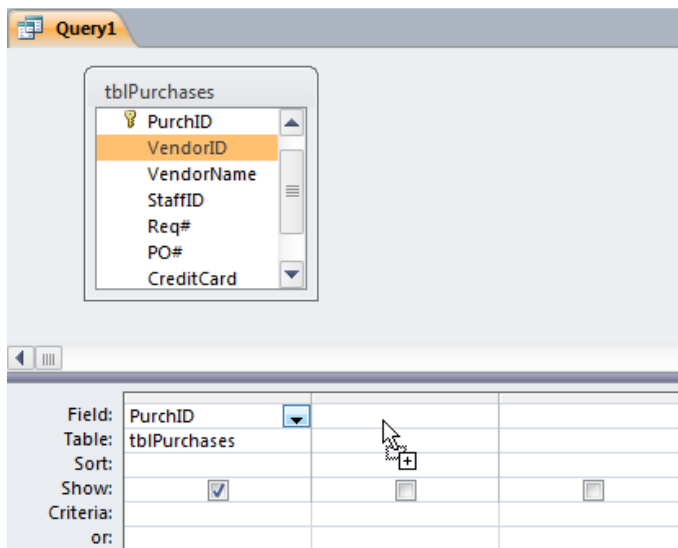
4. In the Show Table list, select the table **tblPurchases**.
5. Click . Access adds the Purchases table to the Field List area.
6. Click . The Show Table window closes.

Once all tables to be queried are in the Field List, you are ready to determine which fields you would like in the query.

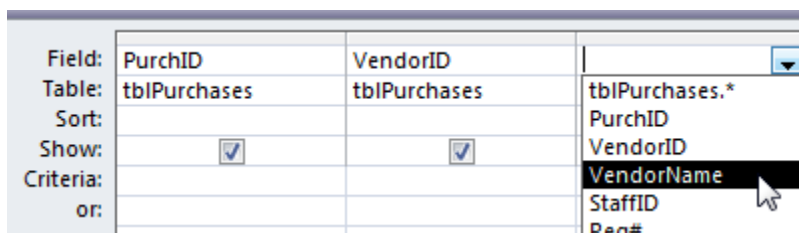
You select fields that you wish to incorporate into your query and move them into the design grid using one of three methods: double-click, drag-and-drop, or drop-down menu.

We will try all three methods to move the fields in to the design grid.

7. In the Purchases field list, double-click the **PurchID** field. The PurchID field appears in the first column of the grid.
8. In the Purchases field list, select the **VendorID** field by clicking and holding.
9. Drag the **VendorID** field to the second column of the grid. The VendorID field appears in the second column of the grid.



10. In the lower grid, click in the next available **Field column**. Notice the empty field displays a drop-down arrow.
11. Click the dropdown arrow. The Purchases table field names appear.
12. Select **VendorName**. The VendorName field appears in the third column of the grid.



13. Using whichever method is most comfortable for you; select the following two additional fields for inclusion in your query:

- DeptID
- Amount

Your design grid should look like this:


Field:	PurchID	VendorID	VendorName	DeptID	Amount
Table:	tblPurchases	tblPurchases	tblPurchases	tblPurchases	tblPurchases
Sort:					
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:					
or:					

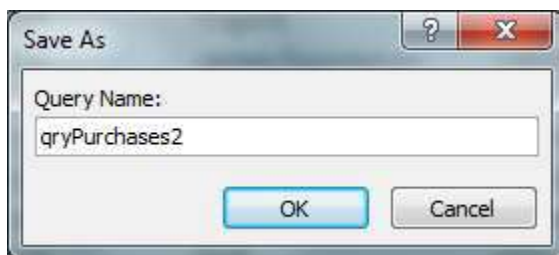
14. Other optional steps in the query design, which we did earlier, could be to define any fields to be sorted and in what order, and criteria could be defined.

To run the query:

15. On the Ribbon, on the Design tab, click the **Run** tool. The query results, or subset of the original Purchases table data, appear, displaying the records and fields.

To save the query:

1. On the Quick Access toolbar, click **Save**  or press **Ctrl + S**. The Save As dialog opens.
2. Name the query qryPurchases2.



3. Click **OK**. The query is saved and is added to the Navigation Pane.

If you intend to only use your query results once, it is not necessary to save the query. But, it is likely that you will want to save your query, particularly if it is a subset of data that is frequently requested.

When you save queries you are saving the design (the question), not the data (the answer). This is important because should the data change – more purchases are added, for example - you would want the most up-to-date data in your dynaset, or query results. There is a dynamic link between the query results and the data source or tables. If you alter data in either location it will alter the data in the other. In this way, you can be assured that your information, whether retrieved from a table or from a query, is current.

4. **Close** the qryPurchases2 query.

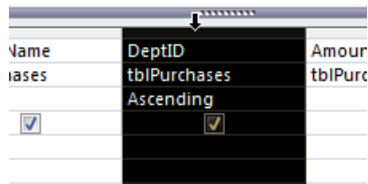
We will create a report from a query in a moment.

ACTIVITY: MODIFYING A SELECT QUERY BY MOVING AND HIDING FIELDS

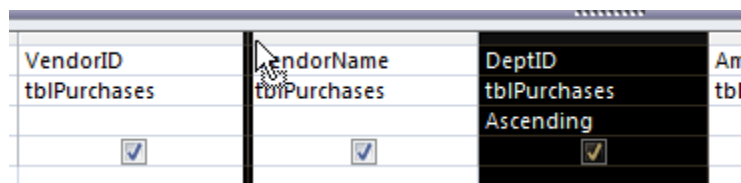
MOVING FIELDS

It is possible to alter the field order after a query has been created (much like moving table fields). You can move fields in Design View by using the drag-and-drop method. First, you select the column using the column pointer. Then, with the left-pointing arrow, click and hold, dragging the field to its new location. These steps will adjust the query so that the DeptID field is just to the right of the VendorID field, for better readability. It is a two-step process: select and then move.

1. Reopen the qryPurchases query. The query opens in Datasheet View.
2. Toggle to **Design View**.
3. Select the DeptID column by clicking the column header with a black down-facing arrow. The column is highlighted.



4. Click and drag the column to the left. A vertical black line moves across the screen.
5. Drop the column to the left of the VendorName column. The column is repositioned.



Although you can also move fields in Datasheet view, the changes do not carry over to Design View. However, changes made in Design View do carry over to Datasheet View.

6. **Run** the Query and view the changes.
7. **Save** the query.

HIDING FIELDS

There may be an occasion when you want to run a query, but not display one or more of the fields. This can be accomplished by hiding the field, rather than removing or deleting it from the query. Hiding fields makes the results easier to read by reducing the amount of information presented.

The following steps will run the Purchases query with the VendorID field hidden, which has been requested.

With the query open in Design View:

1. In the VendorID column, in the Show row, click the **Show** box. The check mark is removed.

Field:	PurchID	VendorID	DeptID
Table:	tblPurchases	tblPurchases	tblPurchases
Sort:			Ascending
Show:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:			

The checkbox toggles on and off the same way, by clicking it.

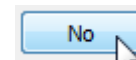
2. On the Home tab, click the **Run** tool. The results of the query appear with the VendorID field hidden.

PurchID	DeptID	VendorName	Amount
6915	C800130	Staples	204.59
6918	C800145	Oracle	5,276.16
6985	C800150	BMC Software	1,829.26
6907	C800155	Dell	204.44
6910	C800170	GSMI	695.00

If you close the query and *do not* save the changes, your query returns to its original state.

If you *save* the changes, the unchecked field will be deleted. You can, of course, save the modified query as another query, depending on how frequently you would need to call the data up.

3. **Close** the query.
4. When prompted, do not save changes to the design.



ACTION QUERIES

Select queries display data, while Action queries change, and then display the data. The two Action Queries we will cover today are the Update query and the Delete query.

UPDATE QUERY

An **Update query** is a query that will make global changes to a select group of records based on criteria that you determine. Instead of manually filtering records in a table, and then editing the records one by one, an update query will automatically perform the same function. For example, if a vendor's services have increased by 10%, running the update query will update only those records pertaining to that vendor, increasing their costs by 10%.

ACTIVITY - CREATING AN UPDATE QUERY

We have a listing of purchases that include vendor names. All of the James Foundation purchases have a monetary cost, reflected in the Amount field in the Purchases table. We want to update only those values by 10%. An update query will be used to accomplish this.

Before we create the update query, we will look at the data that is about to be updated:

1. Open the tblPurchases table. The records display.

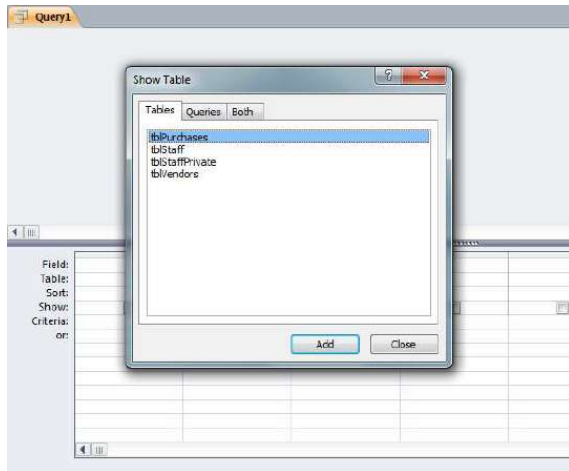
PurchID	VendorID	VendorName	StaffID	Req#	CreditCard	DeptID	Amount
3496	100	Exeter Group	15	70864414	No	C800180	2,139.00
3669	210	Cogent	14	1185631	No	C800310	2,715.40
6389	220	James Foundation	2	1193834	No	C800250	4,500.00
6390	220	James Foundation	15	1193834	No	C800250	10,000.00
6903	230	Computer Associates	16	1061420440	No	C800180	5,754.00
6904	240	Merrill Consultants	1	1061217527	No	C800180	1,500.00


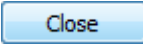
2. Note the two James Foundation records and amounts.
3. Close the tblPurchases table.

To create the update query:

4. On the Ribbon, click the **Create tab**.

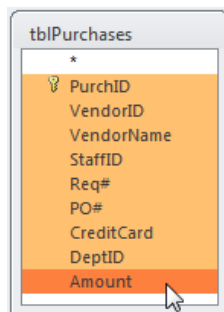
5. On the Create tab, in the Queries group, click the **Query Design** tool. Access displays a blank design grid and the Show Table window to allow you to select the table(s) you wish to query.



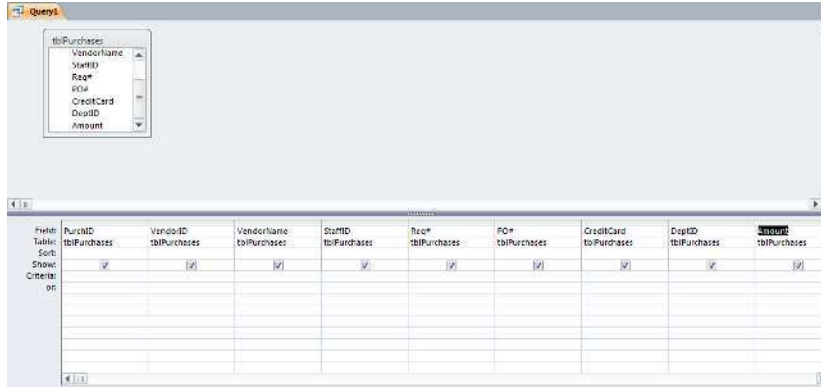
6. In the Show Table list, select the table **tblPurchases**.
7. Click . Access adds the Purchases table to the Field List area.
8. Click . The Show Table window closes.

To move all of the fields into the design grid at once:

9. In the tblPurchases field list, click the PurchID field, scroll down so that the last Amount field is visible, hold down Shift, and click the Amount field (click – Shift –click procedure). All of the fields are selected.

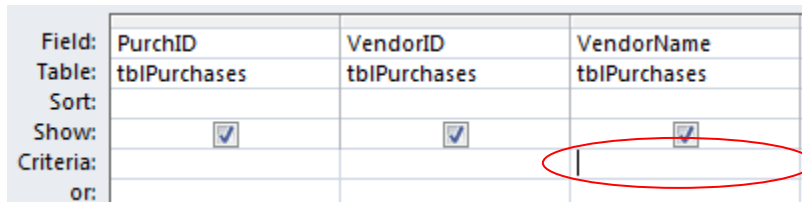


10. Drag the group of fields down to the grid. All of the fields appear in the design grid. Technically, you only need to drag the VendorName and Amount fields into the grid, but we will drag them all for context. Your design grid should look like this:



The next step in this process is to set up the criteria to update the value of the James Foundation records.

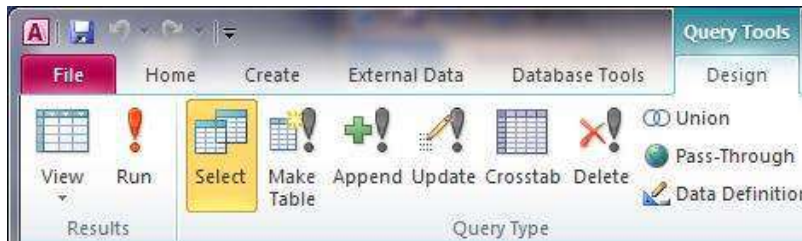
11. In the design grid, in the VendorName field, click in the Criteria field.



12. Type "James Foundation." Only vendor records that match the criteria "James Foundation" will be acted upon.

The final step in this process is to make this an update query.

13. Note on the Query Tools Design tab, in the Query Type group, that this is currently a Select query.

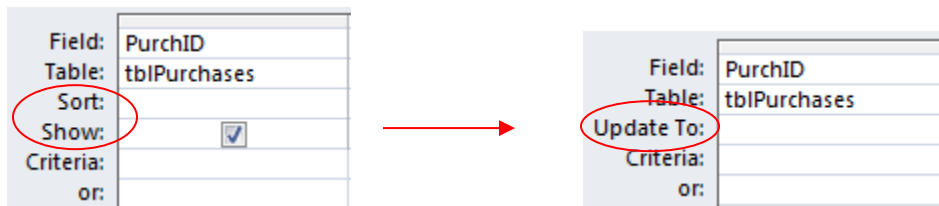
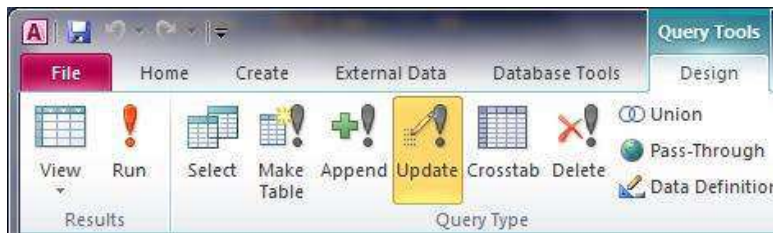


14. Before we change this query, notice the two fields, Sort and Show on the QBE grid.

Field:	PurchID	VendorID
Table:	tblPurchases	tblPurchases
Sort:		
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:		
or:		

QBE grid: this is the Query By Example grid, or area, in the lower half of the screen. The type of query you are running will determine the rows present.

- On the Query Tools Design tab, in the Query Type group, click the **Update tool**. On the QBE grid, the Sort and Show rows have been replaced with Update To:



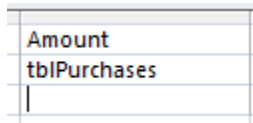
The Select query is now an Update query.

Try clicking the Select query tool again in the Query Type group, keeping your eyes on the QBE grid. Notice the row headings change from Update To to Sort and Show.

Now return to the Update Query option.

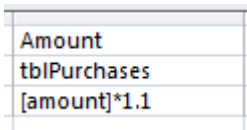
We are now going to set up the criteria to update the value of the James Foundation records by 10%.

16. In the Amount column (9th field in the grid), place the cursor in the Update To field, which is the third row down.



Amount
tblPurchases

17. Type the expression **[amount]*1.1** (This will add 10% to the James Foundation amounts).



Amount
tblPurchases
[amount]*1.1

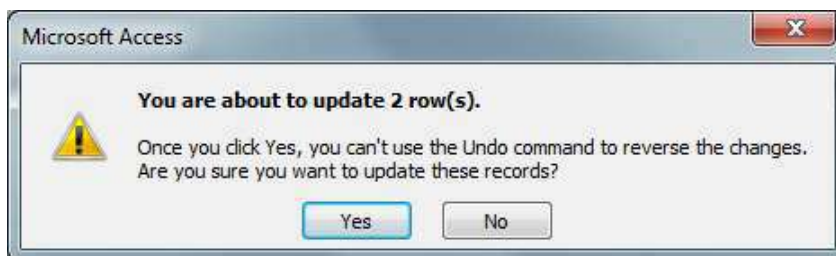
Expression: an expression is a combination of symbols that produces a result. [amount]*1.1 is an expression. In our example [amount] represents the amount field in our Purchases table. The symbol * is an operator, which will perform multiplication. The 1.1 is a value representing our wish to increase the value field by 10%. Case does not matter.

18. Press **Enter**. The cursor moves to the next blank field.


You are now ready to run the Update query.

19. On the Query Tools Design tab, in the Results group, click the **Run tool**.

Access has a warning for you. The number of rows to be updated is indicated. In this case, it is two. *This process cannot be undone*. Always verify changes to tables especially when you are updating many records.



20. Click **Yes**. Note that the view does not change to display the results of the update, and we're still in Design View. Action queries work this way, as opposed to the Select queries we ran earlier. No dynaset or subset of records is displayed.

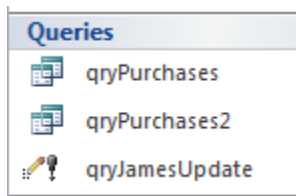
21. In the upper-right corner of the Update query, click the **Close button**  . Access asks if you want to save changes to the design of the query.

This query does not need to be saved, because its work has been done. The two records have been updated by 10%. But we will save it so that the query type can be identified in the Navigation Pane (its icon will reflect an exclamation mark, which would differentiate it from a select query).

22. Click **Yes**. The Save As window opens.

23. Name the query qryJamesUpdate.

24. Click **OK**. The query is saved and displays in the Navigation Pane.



To review the changed data:

25. On the Navigation pane, **open** the tblPurchases table. Note the two James Foundation records that have been updated and the 10% increase in the amounts.


OrderID	VendorName	StaffID	Req#	Amount
	James Foundation	2	1193834	4,950.00
	James Foundation	15	1193834	11,000.00
	Computer Associates	16	1061420440	5,754.00

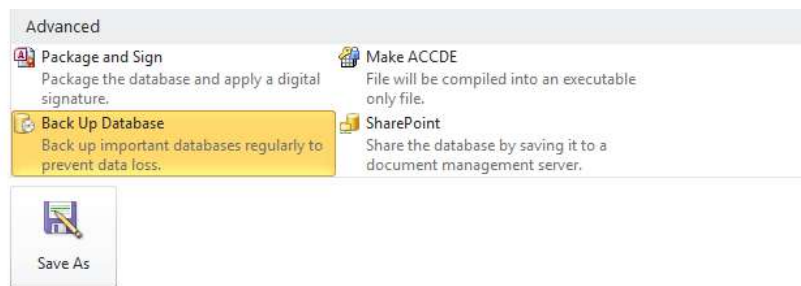
26. **Close** the tblPurchases table.

DELETE QUERY

A **Delete query** is a query that deletes a group of records from one or more tables. For example, you could delete any records from a table that are more than five years old or that meet some other criteria. Databases accumulate quantities of old, outdated data and a delete query can be used as a tool to keep your databases clean.

Before deleting records, a safe step is to back up your database:

1. Click the **File Tab** , select **Save & Publish**, and then, under Advanced, click **Back Up Database**, then **Save As**. The Save As dialog box opens.



2. In the Save As dialog box, specify a name and location for the backup copy, and then click **Save**. Access usually appends today's date to the original file name. The original database file closes, a backup is created, and then the original file reopens.

ACTIVITY - CREATING A DELETE QUERY

We are going to use a Delete query to remove all of the records from the tblPurchases table that are under \$100. They no longer need to be tracked.

Before we create the Delete query, we will look at our tblPurchases table before we delete any records.

1. On the Navigation pane, **open** the tblPurchases table. We currently have 13 records that display amounts less than \$100.
2. **Close** the tblPurchases table.

To create a delete query:

3. On the Create tab, in the Queries group, click the **Query Design tool**. The QBE grid and Show Table window open.

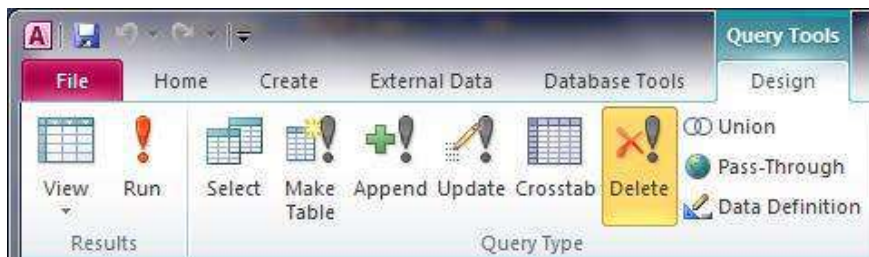


Queries can be created from tables or other queries.

4. In the Show Table window, on the Tables tab, click the table **tbPurchases**.
5. Click **Add**. The Purchases table is brought into the QBE grid.
6. Click **Close**. The Show Table window closes.

To convert the default Select query into a Delete query:

7. On the Query Tools Design tab, in the Query Type group, click the **Delete tool**. On the QBE grid, the Sort and Show rows have been replaced with Delete:



In review, you select fields that you wish to incorporate into your query from the Purchases table and move them into the QBE grid using one of three methods: drag-and-drop (which we just used on the previous query), double-click, or drop-down menu.

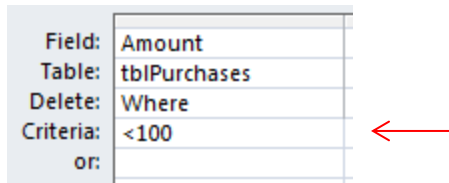
8. Use whichever method is most comfortable for you to bring all of the fields into the design grid for inclusion in the query.

Your QBE grid should look like this:

Field:	PurchID	VendorID	VendorName	StaffID	Req#	PO#	CreditCard	DeptID	Amount
Table:	tblPurchases	tblPurchases	tblPurchases	tblPurchases	tblPurchases	tblPurchases	tblPurchases	tblPurchases	tblPurchases
Delete:	Where	Where	Where	Where	Where	Where	Where	Where	Where
Criteria:									
or:									


The next step is to add the criteria that will delineate or define the records to be deleted. The defining criteria will be entered in the Amount field, criteria row.

- In the Amount field, in the Criteria field below "Where" type <100. Again, case does not matter, but spelling does.



Warning: Never leave the criteria field empty or blank. If you run the query with the criteria field empty, all your records will be deleted!

- On the Create tab, in the Results group, click the **Run tool**. Again you are warned and the number of rows or records to be deleted is indicated (in our case, 13).

 **TIP - Testing the Delete Query**

If you would like to see what records will be deleted before you actually click "Yes" and commit, try this:

- Click **"No."** The warning dialog closes.
- Double-check to make sure that your criterion is entered in the Criteria field.
- On the Create tab, in the Results group, click the **View tool**. This will flip you over to Datasheet view.



You will see a preview of all the records about to be deleted.

PurchID	VendorID	VendorName	StaffID	Req#	PO#	CreditCard	DeptID	Amount
6911	280	Educause	10	1185628	CC#1511010444	Yes	C800310	40.00
6917	140	ATT		1	CC#1516837992	Yes	C800250	29.99
6922	140	ATT		18	CC#	Yes	C800250	29.99
6923	140	ATT		18	CC#1540753134	Yes	C800250	29.99
6924	140	ATT		16	CC#1540753134	Yes	C800250	29.99
6925	140	ATT		20	CC#1617059484	Yes	C800250	29.99
6929	140	ATT		11	CC#1689021096	Yes	C800250	29.99
6930	140	ATT		20	CC#1716877510	Yes	C800250	29.99
6931	140	ATT		14	CC#	Yes	C800250	29.99
6932	140	ATT		13	CC#	Yes	C800250	29.99
6933	140	ATT		17	CC#1536307570	Yes	C800250	99.58
6934	140	ATT		10	CC#561414203	Yes	C800250	97.63
6935	140	ATT		2	CC#1586804896	Yes	C800250	97.63

D. Click the **View tool** again. You are returned to the Design View to the Delete query in progress.

11. Click the **Run button** again if you tried the above tip. The warning displays and the 13 rows or records to be deleted is indicated.

12. Click **Yes**. The screen remains in the Design view.

13. **Close** the unnamed, unsaved Delete Query.

14. Click **No**, to not save this query. The query closes.

To view the updated table data:

15. In the Navigation pane, click **Tables** and open the **tblPurchases table**. The 13 amount records under \$100 have been deleted, leaving 21 records.

The delete query is also useful for deleting records within time periods: For example, typing the expression "<1/1/2000" in the Criteria row of a date field would delete all records prior to 1/1/2000 or every record from 1999 back in time.

Field:	AcqDate	
Table:	tblPurchases	
Delete:	Where	
Criteria:	< "1/1/2000"	
or:		

The following table from the MS Help offers additional selection criteria:

Criteria	Effect
> 234	Returns all numbers greater than 234. To find all numbers less than 234, use < 234.
>= "Cajhen"	Returns all records from Cajhen through the end of the alphabet.
Between #2/2/2011# And #12/1/2011#	Returns dates from 2-Feb-2011 through 1-Dec-2011.
Not "Germany"	Finds all records where the exact contents of the field are not exactly equal to "Germany." The criterion will return records that contain characters in addition to "Germany," such as "Germany (euro)" or "Europe (Germany)".
Not "T*"	Finds all records except those beginning with T.
Not "**t"	Finds all records that do not end with t.
In(Canada,UK)	In a list, finds all records containing Canada or UK.
Like "[A-D]*"	In a Text field, finds all records that start with the letters A through D.
Like "*ar*"	Finds all records that include the letter sequence "ar".
Like "Maison Dewe?"	Finds all records that begin with "Maison" and contain a 5-letter second string in which the first 4 letters are "Dewe" and the last letter is unknown.
#2/2/2011#	Finds all records for February 2, 2011.
< Date() - 30	Uses the Date function to return all dates more than 30 days old.
Date()	Uses the Date function to return all records containing today's date.
Between Date() And DateAdd("M", 3, Date())	Uses the Date and the DateAdd functions to return all records between today's date and three months from today's date.
Is Null	Returns all records that contain a null (blank or undefined) value.
Is Not Null	Returns all records that contain any value (that are not null).
""	Returns all records that contain a zero-length string. You use zero-length strings when you need to add a value to a required field, but you don't yet know what the actual value is.

16. **Close** the tblPurchases table.

Finally, you use delete queries only when you need to change or remove large amounts of data quickly. If you want to remove a small number of records— any quantity that you feel comfortable deleting by hand— you can open the table in Datasheet view, select the fields or rows that you want to delete, and press Delete.

PARAMETER QUERY

If you run the same queries over and over (with nothing more than changes to the criteria each time you run the query), you can convert the query to a **Parameter query**, and save the time of having to open and modify the criteria each time you want to run the query. A Parameter query is a type of query that asks for information "up front." Once you open or run the query, you will be presented with one or more dialog boxes that ask you for information. This information is called the parameters or criteria that *limit* the results of the query. For example, you may have a query that displays all of the transactions that have taken place within your department for a period of time. Instead of setting the parameters once you have the query open, such as a specific vendor or DeptID, you can type the parameters (or limits) before the query opens. Then, when the query opens, you have your range of records presented to you.

ACTIVITY - CREATING A PARAMETER QUERY

We will set up a parameter query that will prompt the user to enter the particular DeptID that they are interested in. This way, only the records from the Purchases table that match those parameters (or DeptIDs) will be returned.

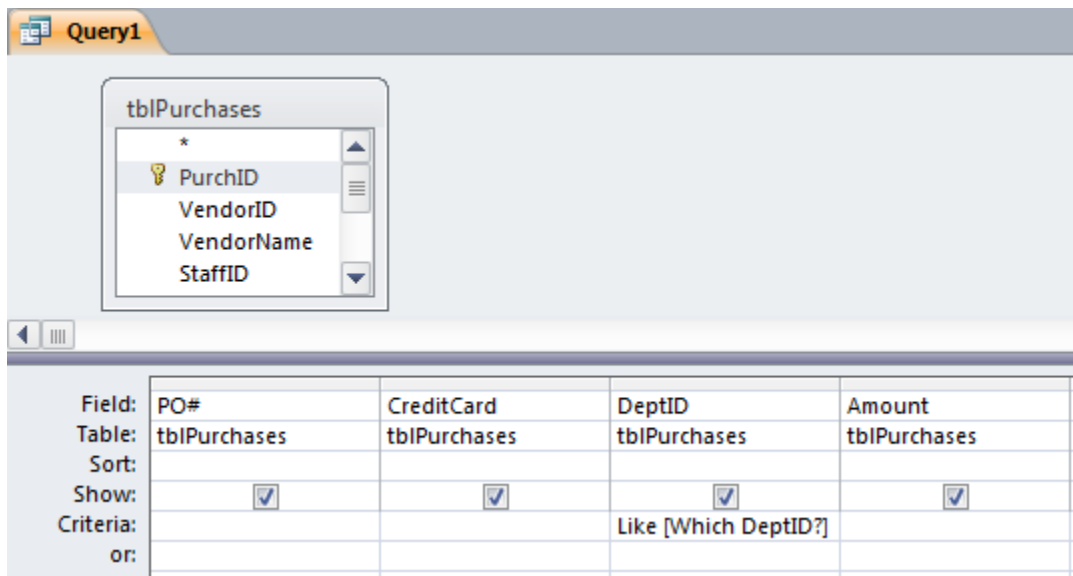
We will create this new parameter query from scratch.

1. On the Create tab, in the Queries group, click the **Query Design tool**. The QBE grid and Show Table window open.
2. In the Show Table window, on the Tables tab, click the **tblPurchases** table.

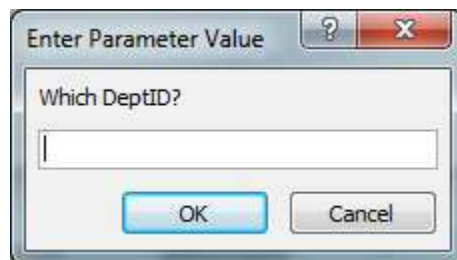
3. Click **Add**. The Purchases table is brought into the QBE grid.
4. Click **Close**. The Show Table window closes.
5. Bring all the fields from the Purchases fields list into the QBE grid.

We will now proceed to set up our parameters or query criteria. This query will require a DeptID to be entered to run the query.

6. Click in the Criteria cell in the DeptID field (8th column, 5th cell).
7. Type **Like [Which DeptID?]**.



What you have just typed, Like [Which DeptID?], will be the prompt in the dialog box that the end user will see every time this query is run.



You will see this prompt when this parameter query is run in a moment. The user will then enter the parameters (DeptID) that will define the query results.

Note that the text of your prompt cannot match the field name exactly. If you did match the field name exactly, you would no longer have a parameter query. You can include the field name as part of your prompt, as we have. You can also choose to add just a question mark after the field name if you wish. Try to make your prompts user friendly.

To run the parameter query:



8. Click the **Run tool** . The Enter Parameter Value dialog window displays.

This is the prompt *Which DeptID?* that you just set up.

9. Type **C800170**.
10. Click **OK**. Four records are returned for DeptID C800170.
11. **Close** the query. You are prompted to save the query.
12. Click **Yes** to save the query. The Save As window opens.
13. Name this query **qryDeptID**.
14. Click **OK**. The parameter query is saved.

To try the qryDeptID parameter query with another ID:

1. **Open** (double-click) the qryDeptID query. The Which DeptID? prompt appears requesting the parameters or limits of your query.
2. Type **C800250**.
3. Press **Enter** or **click OK**. Any C800250 DeptIDs will be returned. Four records display.
4. **Close** the query.

These next steps will run the parameter query with non-matching criteria and then with wildcards.

1. **Run** the qryDeptID parameter query again. The Which DeptID? prompt appears requesting the parameters or limits of your query.
2. Type **C800999**.
3. Press **Enter** or **click OK**. The query runs, but no records return.

When no records match the parameter value, this is the result you will encounter.

4. **Close** the query.

Wildcards

A **wildcard** is special character that allows you to search for a group of criteria instead of using exact matches. An asterisk (*) is an example of a wildcard character. These special symbols can represent one or more characters. You can use a wildcard to select records that contain certain characters or parts of words.


For example, in the VendorName field, you could search for the value **C*** to locate any vendor beginning with the letter “C.”

The asterisk (*) returns any number of characters.

Example: C* will return Continental Resources,
Computer Associates, and
Cogent.

The question mark (?) returns any single character in a certain position.

Example: C??ent will only return Cogent.

Typing “wildcard” in the Access Help  will bring up additional search characters.

We will use a wildcard to search for any DeptIDs beginning with the letter “U.” To search using wildcards in this parameter query:

1. **Open** the qryDeptID query again. The Which DeptID? prompt appears requesting the parameters or limits of your query.
2. Type **U***.
3. Press **Enter** or **click OK**. Two records beginning with U display.

Do be careful of your spelling. If you misspell a word, the query will still run, and will return invalid data.

4. **Close** the query.

See the Appendix for steps on how to build a parameter query that requires a range of criteria and will display two different prompts, both a Vendor name and a DeptID, when it is run.

REPORTS

The ability to generate reports is one of the advantages of using a program like Access. Although you can print tables, forms, and the results of your queries, you have greater control over the data's presentation when you generate a report.

Reports are the end result of much of your work in any database. Reports provide a way to organize, format and print desired information. Access reports let you combine elements such as data, text, graphs and graphic elements (i.e. lines, rectangles, and so on) to provide the precise report you want.

A report is based on a table or on a query. If the report is query-based, the query runs whenever the report is opened, and the desired subset of data automatically appears in the report. As data changes, so do the values in the report.

Report Design Considerations

Before jumping right into report design, proper planning can save time and avoid creating reports that don't provide users with the needed information. When designing a report, you are taking raw data provided from a table or query and transforming it into a printed report that conveys a meaningful message. An effective method for producing a report might consist of these three steps:

1. **Define the report's layout on paper:** Many times when a report is being designed, fields and values are left out. The best way to avoid such errors is to design the report on paper first. By doing so, you can get a feel for how the report should look, where fields need to be placed and how the report might be used.
2. **Design and implement the underlying query:** As stated before, queries are the best platform to create reports. By using the query, you determine the fields and records to include. You can also use the query to perform preliminary calculations for the report.
3. **Design the report in Access:** Once you have performed the steps outlined above, you are ready to begin designing the report. You can use the Report Wizard to get started, and then design the rest. If you do not prefer this method, you can always create a new report manually.

CREATING A REPORT USING THE REPORT WIZARD

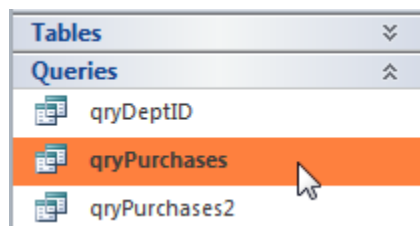
The built-in **Report Wizard** provides an automated way to create any number of commonly used reports. Like the Simple Query Wizard that we used earlier, the Wizard steps you through the process of report design by asking a number of questions about the desired report. When using the Report Wizard, you can select data from more than one table or query. You then have the option of grouping records by a specific field(s), as well as the option to sort records within a grouping. Finally, there are several formatting options. You can select from six different layouts for your report, and print in either landscape or portrait modes. Moreover, you can make modifications to reports generated by the Wizard in Design View.

ACTIVITY: CREATING AND MODIFYING A REPORT

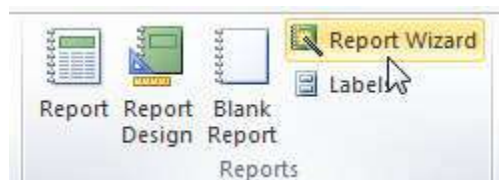
We will create a report based on the Purchases query that sorts or breaks the results by DeptID. A report like this would be useful for tallying fiscal year expenditures that are broken out by DeptID, then handed out to department managers.

To open the Report Wizard:

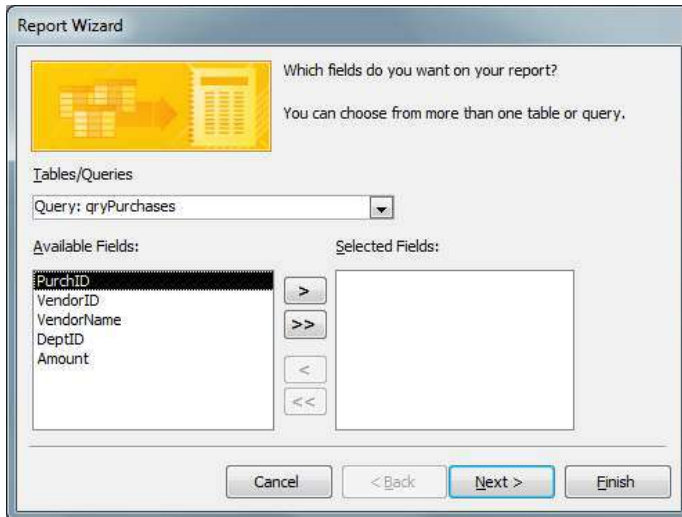
1. In the Navigation Pane, click to highlight the qryPurchases query.




2. On the Ribbon, click the **Create** tab.
3. In the Reports group, click the **Report Wizard** tool. The wizard opens.



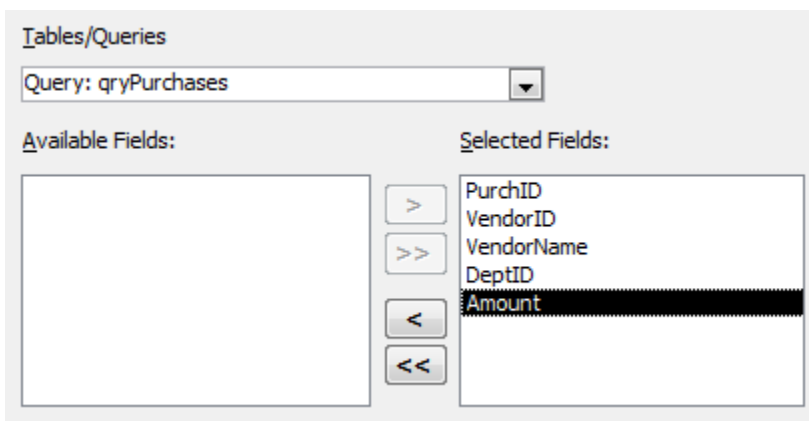
This first step allows the user to select the table(s) or query(ies) and their fields to include on the new report. From this report, you have the option to include more than one table and any combination of fields, including their order.



The fields of your selected query or table appear in the left box “Available Fields.” You select those fields that you want incorporated into your report and click on the right-pointing arrow. (Here again, the double arrows will select all the fields of a selected table.)

4. Select all five of the fields by clicking .

Your screen should look like this:

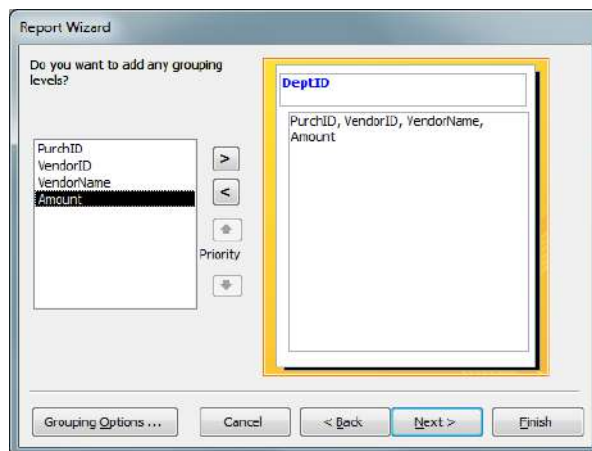


5. Click **Next**. The next step of the wizard opens.

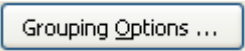
The wizard asks you if you want any grouping levels. Many times, you will want to organize data by specific values. In our example, we need to see all of the purchases grouped by DeptID. Grouping levels add emphasis and organization to the report.

To group by DeptID:

6. Click to select **DeptID**.
7. Click the **right-pointing arrow**. The DeptID field is promoted and the Grouping Options button in the lower left corner is activated.

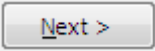


You can also make modifications to the grouping. In our case, we have sufficient grouping, simply DeptID. But if there was a hire date field, you could group the records by month hired or by year hired. To access additional grouping options, you would click the Grouping Options button.

8. Click the **Grouping Options** button. . The Grouping Intervals dialog box opens.
9. In the Grouping intervals field, click the **down-arrow**. Any additional grouping options would be listed.

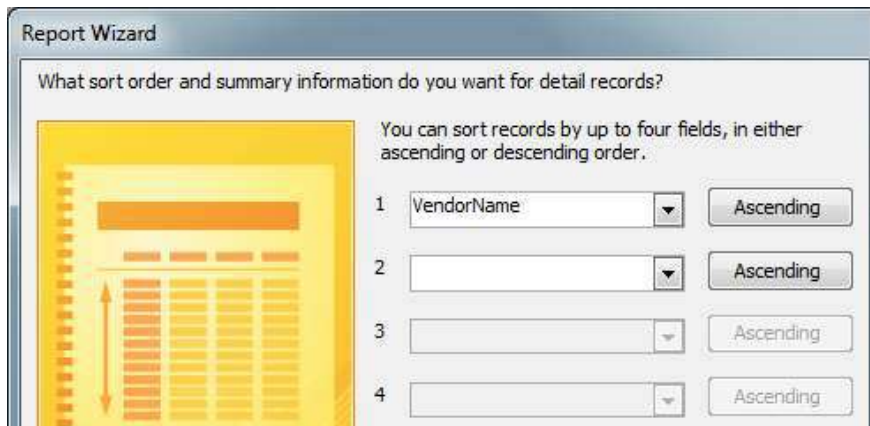
Since this is a basic text field the grouping options are not useful.

10. To return to the grouping levels wizard step, click **Cancel**. The Grouping Intervals dialog box closes.

11. Click **Next** . The next step of the wizard opens.

You are asked what sort order you want for detail records. You may choose up to 4 fields, in either ascending or descending order. If you choose no sort order, the detail will be sorted by the grouping level (DeptID). If you do not select a grouping level, the records will be sorted by primary key.

12. In the first field, select **VendorName**. If there are more than one DeptID in a group (which there are), the vendors will then be listed by DeptID in ascending order.

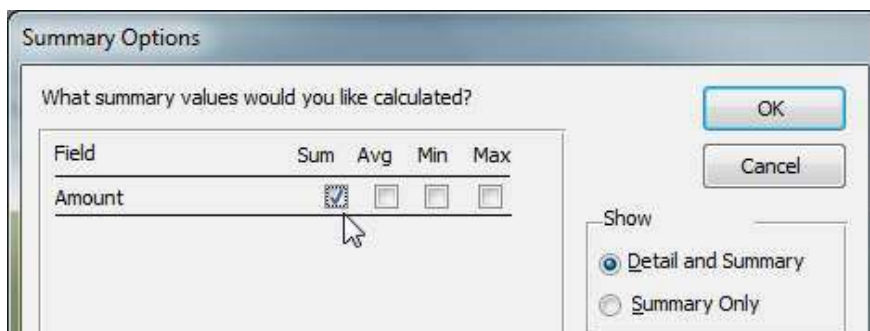


The Sort button to the right of the Last Name field will toggle between Ascending and Descending each time you click it.

The Summary Options button provides an additional report field that is capable of calculating sum, average, minimum, or, maximum.

13. Click the **Summary Options** button. The Summary Options window opens.

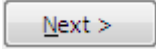
The Amount field is a Number data type, so it is present.



14. Check the Sum field. In the report, this will provide an extra line of summary data for purchases grouped by DeptID.

If you do not like the look or the way this summary data lays out in the report, it can be manually removed (which we will do in a moment).

15. Click **OK**. The Summary Options window closes.

16. Click **Next** . The next step of the wizard opens.

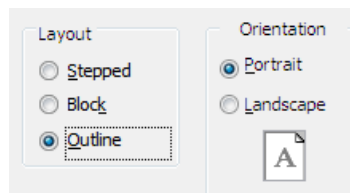
You must now decide your report's layout. The layout portion of the wizard gives the user the opportunity to orient the output on the paper.

As you select the different Layout options, the graphic will change to give you an idea of what the report will look like.

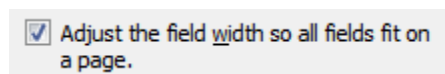
17. In the Layout field, click through the various layouts.

18. Select **Outline**.

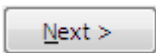
19. Make sure the Orientation option **Portrait** is selected.



20. Make sure that the check box is activated next to “Adjust the field width so all fields fit on a page.”



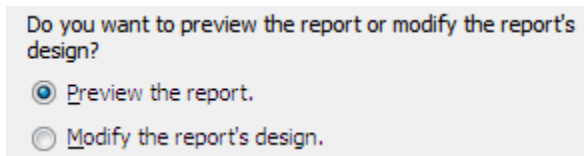
Selecting this option forces all of your fields to fit on a page. If for some reason you find the fields on your report truncated, this could be the reason.

21. Click **Next** . The final step of the wizard opens.

You can now name your report, then preview your report or go directly to Design View to modify it. The default title is the same as the name of the table or query on which you based the report.

22. Name the report "**rptPurchases.**"

23. Verify that **Preview the report**, the default, is selected.



24. Click **Finish**. The newly created report opens in Print Preview.

DeptID	C800130			
VendorName	PurchID	VendorID	Amount	
Staples	6915	130	204.59	
Summary for 'DeptID' = C800130 (1 detail record)				
Sum			204.59	
DeptID	C800145			
VendorName	PurchID	VendorID	Amount	
Oracle	6918	150	5,276.16	
Summary for 'DeptID' = C800145 (1 detail record)				
Sum			5,276.16	
DeptID	C800150			
VendorName	PurchID	VendorID	Amount	
BMC Software	6985	200	1,829.26	
Summary for 'DeptID' = C800150 (1 detail record)				
Sum			1,829.26	
DeptID	C800155			

The report now presents the data, grouped by Department ID in A to Z sort order. When more than one vendor appears by DeptID, such as C800170, the vendors are listed in ascending order.

Note text fields are left aligned and number fields are right aligned. If you wish to make changes to the design of the report, this can be accomplished in Design View.

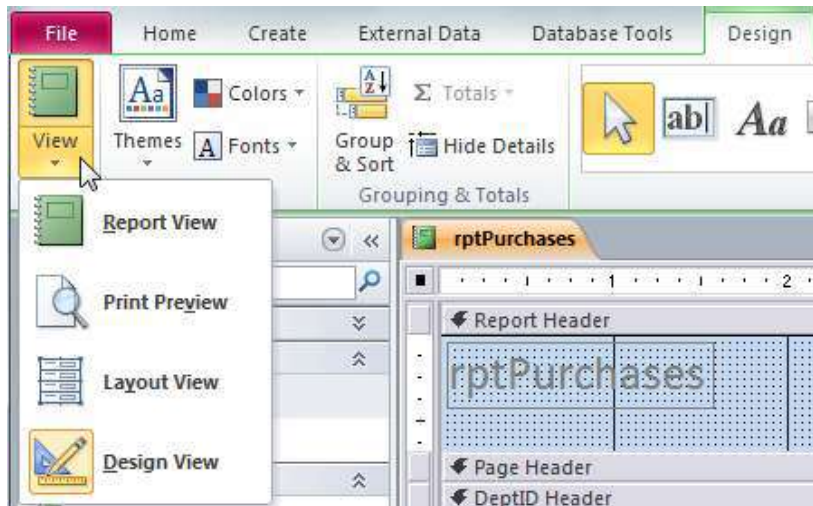
To Close Print Preview:

1. On the Ribbon, click **Close Print Preview**. You are now in Report View.

MODIFYING A REPORT'S DESIGN

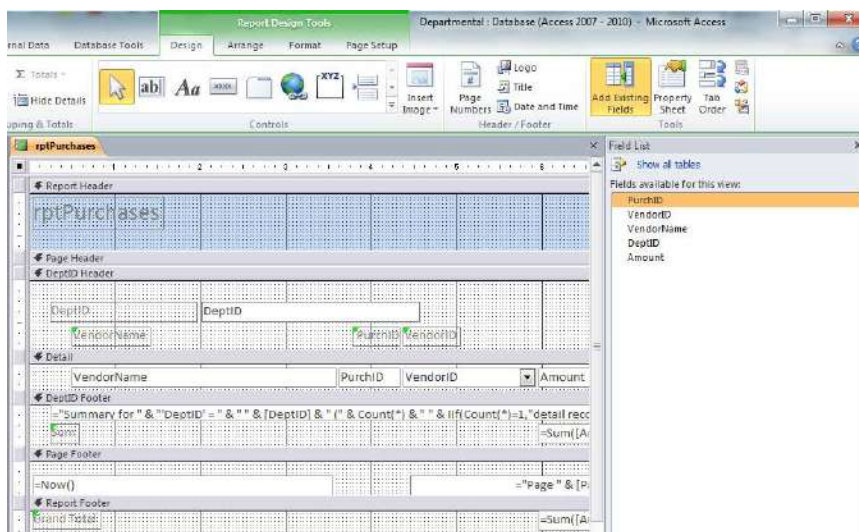
This activity will make changes to the Purchases report. We will remove an unneeded summary field and clarify (edit) another, in Design View.

1. To switch between report views, on either the Design or Home tabs, click the **lower half of the View tool**. The four view choices display.



You will notice that the View options contain four options. The Layout View allows you to view the report with data while still being able to change the overall look and feel for the report. Design View still gives you as the designer the most flexibility and complete design tool choices.

2. Select **Design View**. The report displays in Design view, with the Field List pane displayed on the right side.



When viewing the report in Design View, you will see the report in its most basic design.

The report is broken into different sections or bands such as Report Header and Footer, Page Header and Footer, DeptID Header and Footer, and Detail. Each band orders how the report will be sorted and generated and they create the “look” of the report. Each band is identified by a raised horizontal bar.

The different sections are:

The screenshot shows a report titled "rptPurchases" with the following data and annotations:

DeptID	VendorName	PurchID	VendorID	Amount
C800130	Staples	6915	150	204.59
Summary for 'DeptID' = C800130 (1 detail record)				204.59
C800145	Oracle	6918	150	5,276.16
Summary for 'DeptID' = C800145 (1 detail record)				5,276.16
C800150	BMC Software	6985	200	1,829.26
Summary for 'DeptID' = C800150 (1 detail record)				1,829.26
C800155	Dell	6907	250	204.44
Summary for 'DeptID' = C800155 (1 detail record)				204.44
C800170	APTARE	6919	160	1,700.00
	Continental Resources	6983	170	3,918.51
	Continental Resources	6920	170	4,838.10
	GSMI	6910	270	695.00
Summary for 'DeptID' = C800170 (4 detail records)				11,151.61

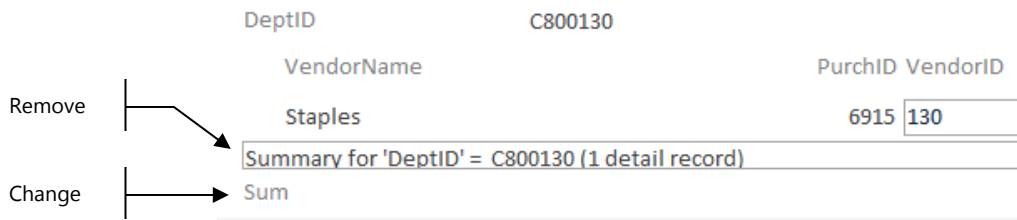
Annotations in the image point to the following sections:

- Report Header:** The top blue bar containing the report title "rptPurchases".
- Group Header:** The section containing the DeptID and summary rows for each department.
- Detail:** The rows containing individual purchase records with columns for VendorName, PurchID, VendorID, and Amount.
- Page Footer:** The bottom of the page containing the date "Tuesday, July 31, 2012" and "Page 1 of 3".

Band	Description
Report Header	The Report Header appears only once at the top of the first page of the report. This band is ideal for a logo or cover page for the report.
Page Header	The Page Header appears at the top of every page in the report. This band is used to display the column headings of the report. Our report has no page header.

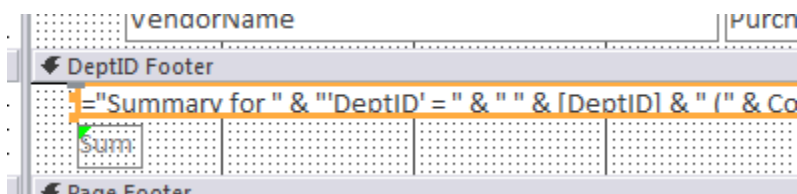
Band	Description
Group Header (optional)	The Group Header appears at the beginning of a new group of records. In our example, it is Dept ID.
Detail	The Detail band prints the data from the underlying report or query. It will continue to print on a page until the Page Footer is encountered.
Group Footer (optional)	The Group Footer band works in conjunction with the Group Header. Its primary function is to display subtotals for each group. In our case, the Dept. amounts are displayed.
Page Footer	The Page Footer is the area at the bottom of the page used for page numbers and miscellaneous information.
Report Footer	The Report Footer appears only once at the bottom of the last page of the report. This band is used for Grand Totals and summary information.

We will clean up the report by removing superfluous DeptID footer information and changing the word “Sum” to “Total.”



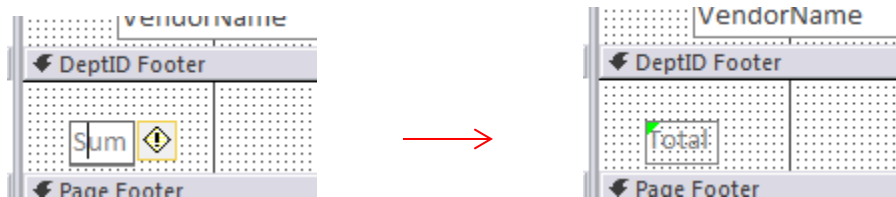
To edit the report:

1. In Design View, in the DeptID Footer area, click once on the ="Summary for " field. The field is outlined in orange.



2. On the keyboard, press **Delete**. The field is removed.

3. In the same DeptID Footer area, click once to select the Sum label. The field label is outlined in orange.
4. Click again. You are now in editing mode.



5. Change “Sum” to “Total.”

To see how the report looks:

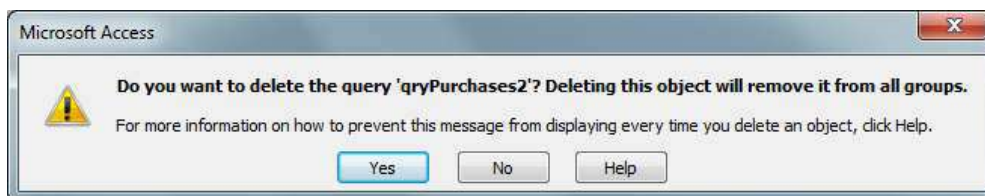
6. On the ribbon, click the **View (Report View)** tool. The report displays in Report View.
7. **Save and Close** the rptPurchases report.

DELETING OBJECTS

You may decide that an object such as a query, table or report you have created and saved is no longer needed. You can delete it.

We will delete the second query that we built today, qryPurchases2.

1. In the Navigation Pane, in the Tables group, right-click the qryPurchases2 query. The shortcut menu appears.
2. From the shortcut menu, select **Delete**. You will get a warning because you cannot undo a deletion of an object.



3. Click **Yes**. The query is deleted.

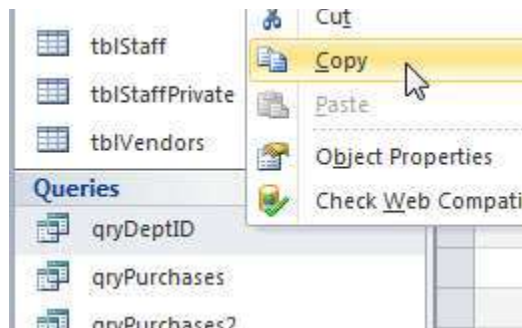
APPENDIX

PARAMETER QUERY WITH TWO PROMPTS

Follow these steps to build a parameter query that requires a range of criteria and will display two different prompts, a Vendor name and a DeptID, when it is run.

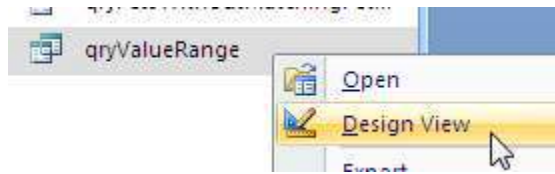
Begin by making a copy of the qryDeptID query.

1. On the Navigation bar, right-click the **qryDeptID query**. The shortcut menu opens.
2. From the shortcut menu, select **Copy**.



3. Right-click anywhere in a free (white) section of the Navigation bar. The shortcut menu opens.
4. From the shortcut menu, select **Paste**. The Paste As dialog box opens.
5. In the Paste As dialog box, type **qryVendorandDeptID**.
6. Click **OK**. The new parameter query is added to the query list.
7. On the Navigation bar, in the Queries list, right-click the **qryVendorandDeptID query**. The shortcut menu displays.

- On the shortcut menu, select **Design View**. The query opens in Design view.



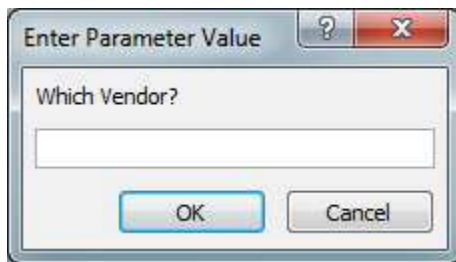
We will add the additional VendorName prompt to the query.

- In the VendorName field, enter the criteria “**Like [Which Vendor?]**”.

Field:	PurchID	VendorID	VendorName	S
Table:	tblPurchases	tblPurchases	tblPurchases	tblPurchases
Sort:				
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Criteria:			Like [Which Vendor?]	
or:				

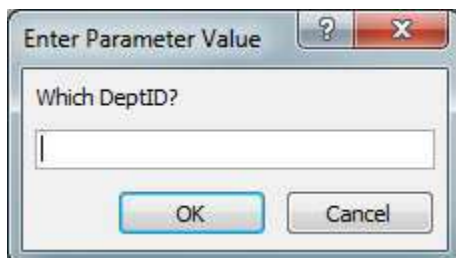
We now have a “Which Vendor?” prompt and a “Which DeptID?” prompt.

- Run** the query. The Which Vendor? prompt appears requesting the parameters or limits of your query. The first parameter is entered here.



- Type **Insight Global**.

- Press **Enter** or click OK. The second prompt displays. This is where the last parameter will be entered.



13. Type **C800280**.
14. Press **Enter** or click OK. One record is returned that meets the parameters of the query.
15. **Close** the qryVendorandDeptID query.
16. **Save** the changes to the new design.

Note: Entering “Is Null” in the criteria field will return any records with empty or blank fields.

StaffID	Req#	PO#
tblPurchases	tblPurchases	tblPurchases
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Is Null	

MAKE-TABLE QUERY

A Make-Table query does just that: it creates a new table using data from one or more existing tables based on the results of a Select query. One application of a make-table query is to create a table of records that you are about to delete (like a history table). You can hold onto the table until you are sure you don't need the records you are about to purge.

The Make-Table query's dynaset is a brand new table *composed of duplicate records or data*. The records contained in this table are no longer linked to the original, nor are the original records deleted.

Using the tblPurchases table as a parent table, we will create a make-table query that copies a set of records for the DeptID C800170 and puts them in their own table.

To create a Make-Table query:

1. On the Create tab, in the Queries group, **click the Query Design tool**. The QBE grid and Show Table window open.

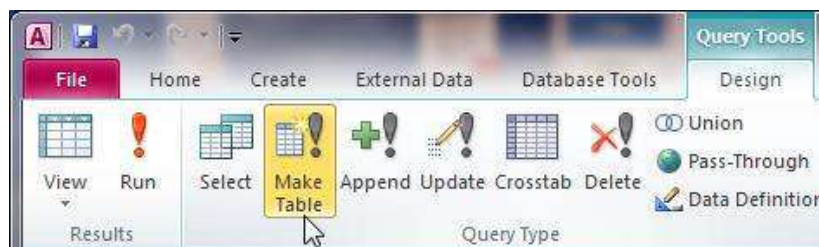


Queries can be created from tables or other queries.

2. In the Show Table window, on the Tables tab, click the table **tbPurchases**.
3. Click **Add**. The Purchases table is brought into the QBE grid.
4. Click **Close**. The Show Table window closes.

To convert the default Select query to a Make-Table query:

5. On the Query Tools Design tab, in the Query Type group, click the **Make Table tool**. The Make Table dialog box displays:



You are prompted to name the new table and decide where you want the table to reside.

6. Name this table "**tbIC800170**."



This table will be composed of any records from the tblPurchases table that are C800170. We will set the criteria to pull those records shortly.

We'll leave it in the current database (the default).

7. Click **OK**. The Make Table dialog box closes.

You are ready to proceed with the Make Table query.

8. Bring all of the fields from the table into the QBE grid. All nine fields are added to the grid.

To set criteria that will return only C800170 records:

9. Click in the Criteria field in the DeptID column and type **"C800170."**

Before the Make-Table query is run, the following three tables list a variety of arithmetic, comparison, and logical operators that can be used in Access queries. An operator is a sign or symbol that specifies the type of calculation to perform within an expression.

Arithmetic operators:

Operator	Purpose	Example
+	Sum two numbers.	[Subtotal]+[SalesTax]
-	Find the difference between two numbers or indicate the negative value of a number.	[Price]-[Discount]
*	Multiply two numbers.	[Quantity]*[Price]
/	Divide the first number by the second number.	[Total]/[ItemCount]
\	Round both numbers to integers, divide the first number by the second number, and then truncate the result to an integer.	[Registered]\[Rooms]

Comparison operators:

Operator	Purpose	Example
<	Returns True if the first value is less than the second value.	Value1 < Value2
<=	Returns True if the first value is less than or equal to the second value.	Value1 <= Value2
>	Returns True if the first value is greater than the second value.	Value1 > Value2
>=	Returns True if the first value is greater than or equal to the second value.	Value1 >= Value2
=	Returns True if the first value is equal to the second value.	Value1 = Value2
<>	Returns True if the first value is not equal to the second value.	Value1 <> Value2

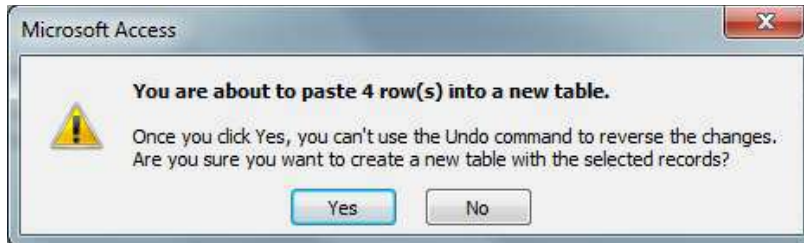
Logical operators:

Operator	Purpose	Example
And	Returns True when Expr1 and Expr2 are true.	Expr1 And Expr2
Or	Returns True when either Expr1 or Expr2 is true.	Expr1 Or Expr2
Eqv	Returns True when both Expr1 and Expr2 are true, or when both Expr1 and Expr2 are false.	Expr1 Eqv Expr2
Not	Returns True when Expr is not true.	Not Expr
Xor	Returns True when either Expr1 is true or Expr2 is true, but not both.	Expr1 Xor Expr2

To run the query and make the tblC800170 table:



- Click the **Run tool**. Access tells you how many records will be added (pasted) to the new table.



- Click **Yes**. The records are copied into the new tblC800170 table, the new table displays in the Navigation Pane, and because this is an action query, you remain in Design view.

- Close** the Make-Table query. You are asked if you want to save changes to the design of the query.

- Click **No**, don't save the query. The query closes.

- On the Navigation Pane, click back to your Tables and **open** the new table "**tblC800170**." The four copied records display.

PurchID	VendorID	VendorNam	StaffID	Req#	PO#	CreditCard	DeptID	Amount
6910	270	GSMI	14		CC#1517835738	Yes	C800170	695
6919	160	APTARE	20	1062019380	EP0011928	No	C800170	1700
6920	170	Continental Re	19	1062867098	EP0012209	No	C800170	4838.1
6983	170	Continental Re	22	1062023594	EP0011901	No	C800170	3918.51

To reemphasize, the data has been copied. If you were creating the table as an archive, you can now run another query such as a Delete query to remove the C800170 records from the Purchases table. Again, when you run a Make-Table query, data is copied, not deleted or moved.

- Close** the C800170 table.

APPEND QUERY

An **Append query** will add a group of selected records into an existing table. For example, you need to bring a list of staff or vendors from another table into one of your existing tables. Instead of retyping the list, you can "append" or add the records to your existing table. You also have the ability to selectively bring in only the fields you need into your existing table.

We will append a table of staff records from another database into the tblStaff table.

To view the data to be appended:

1. In the class files folder, open the **DepartmentalS** database.
2. **Open** the table **tblAddtlStaff**. Five records display.

StaffID	LName	Fname	Department	Campus
30	Goldman	Sam	Human Resources	Medford
31	Avery	Wanda	Library - Cummings - Vet	Grafton
32	Griffin	Lee	UA - Alumni Relations	Medford
33	O'Brien	Denise	Provost's Office	Medford
34	DeNatoli	Emily	Tisch College	Medford

3. **Close** the tblAddtlStaff and the DepartmentalS database.

To create the Append query:

4. On the Create tab, in the Queries group, click the **Query Design tool**. The QBE grid and Show Table window open.

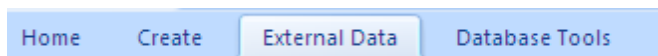


Since the tblDepartmentalS has not been imported into this database, it will not display in the Show Table window.

5. **Close** the Show Table window. The Show Table window closes.

To import the tblAddtlStaff table:

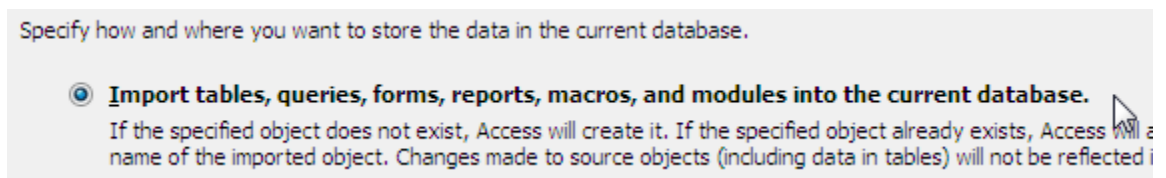
6. On the Ribbon, click the **External Data** tab.



7. In the Import & Link group, click the **Access** tool. The Get External Data - Access Database window opens.

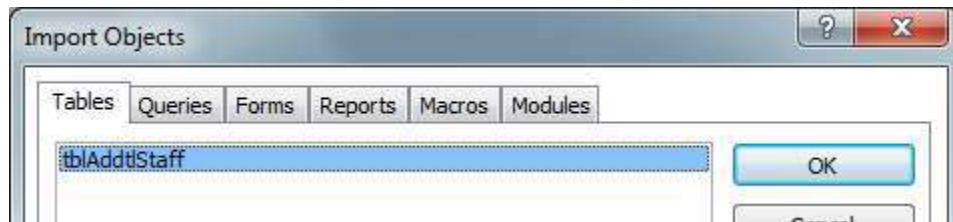


8. Check the option “**Import tables, queries,... into the current database.**”



9. In the File Name field, click **Browse**. The File Open window opens.
10. On the Desktop, in the class files folder, select the **DepartmentalS** database.
11. Click **Open**. The path displays in the File Name field.
12. Click **OK**. The Import Objects window opens.

13. In the Import Objects window, on the Tables tab, click to select **tblAddtStaff**.



14. Click **OK**. The tblAddtStaff table is imported and the Save Import Steps window opens.

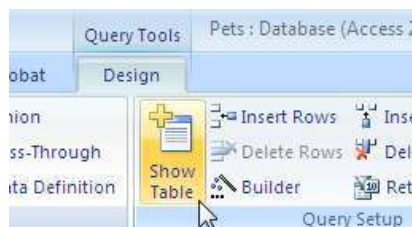
15. **Close** the Save Import Steps window.

If you choose to save the import steps, you can quickly retrieve the same table and save time through the Saved Imports tool.



To add the table tblAddtStaff to the query:

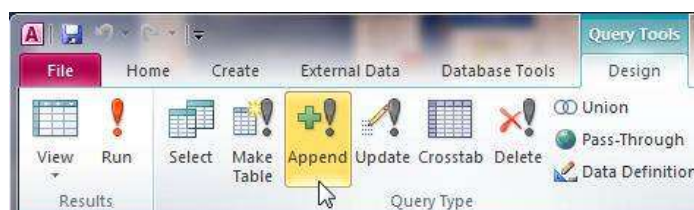
16. On the Ribbon, on the Query Tools Design tab, in the Query Setup group, click the **Show Table tool**. The Show Table window opens, with the newly imported tblAddtStaff table.



17. Add the table **tblAddtStaff**.

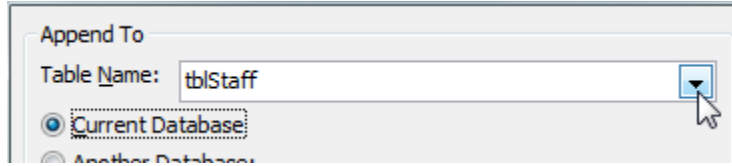
18. **Close** the Show Table window.

16. On the Query Tools Design tab, in the Query Type group, click the **Append tool**. The Append dialog box displays.



In the Table Name field, the name of the table in which we want the records to be appended needs to be entered.

17. In the Table Name field, click the down-arrow and select **tblStaff**.



Leave it in the current database.

18. Click **OK**.

Note that the tblAddtStaff table has five out of six fields that have the same name. You can append as many or as few fields as you like. There may be superfluous information that you do not need in your table.

You can only append fields to other fields if they have the same Data Type, such as Text (Text to Text) or Currency (Currency to Currency). If you attempt to append one data type to another, Access will return a “type conversion failure” error. You can append a field with the same data type, but a different name, which we will do in a moment.

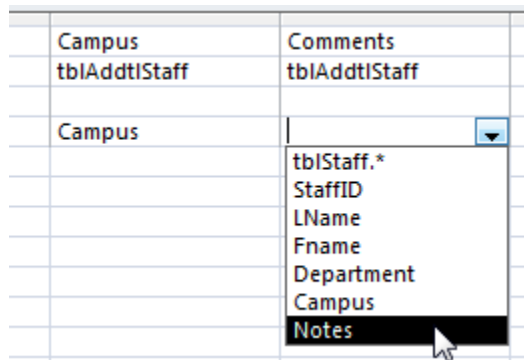
19. Bring all six fields into the QBE grid.

Access displays the table that the records will be appended to as well as the name of the field that the data will be appended to.

Field:	StaffID	LName	Fname	Department	Campus	Comments
Table:	tblAddtStaff	tblAddtStaff	tblAddtStaff	tblAddtStaff	tblAddtStaff	tblAddtStaff
Sort:						
Append To:	StaffID	LName	Fname	Department	Campus	
Criteria:						
or:						

Note that the Comments field does not yet have a field in the Staff table to append to. If you wish to append records with a different field name than the field in the table to be appended to, but the same data type, you may.

20. In the Comments field, click the down-arrow in the **Append To field** (reveals all of the possible fields) and select **Notes**. The fields are now matched up.



At this point, if you would like to double-check to see what records are going to be appended to the end of the tblStaff table, click the View tool, and you can preview the records in Datasheet view. Click the View tool again to return to Design view and the query in progress.



To run the query:

21. Click **Run**. You will be warned that you are about to append 5 rows.
22. Click **Yes**. The records are appended, although it appears that nothing has happened since this is an action query.
23. **Close** the Append query.
24. **Don't save** the design. The query is not saved.
25. On the Navigation Pane, in the Tables, **open** the **tblStaff table**. The 28 records display including the 5 appended records.

To note: The appended records had the same six fields as the fields represented in the tblStaff table. Be careful when appending records because a zero value or a blank field may mean something (such as a pH or donation amount) and be misinterpreted. In our case, comments are usually text, so not seeing any is no cause for concern.

The records were sorted by StaffID alphabetically as StaffID is the primary key.

FIND DUPLICATES QUERY WIZARD

Using the **Find Duplicates query**, you can determine if there are duplicate records in a table, or determine which records in a table share the same value. For example, you might search for duplicate values in an address field to determine if you have duplicate records for the same vendor, or you might search for duplicate values in a city field to see which suppliers are in the same city.

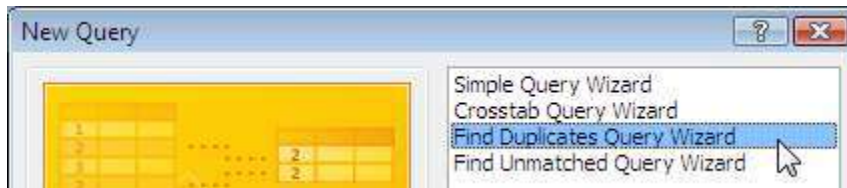
We will use this wizard to search for any duplicate records in the last name field of the tbStaff table.

To launch the Find Duplicates Query Wizard:

1. On the Create tab, in the Queries group, click the **Query Wizard tool**. The New Query window opens.



2. Select **Find Duplicates Query Wizard**.



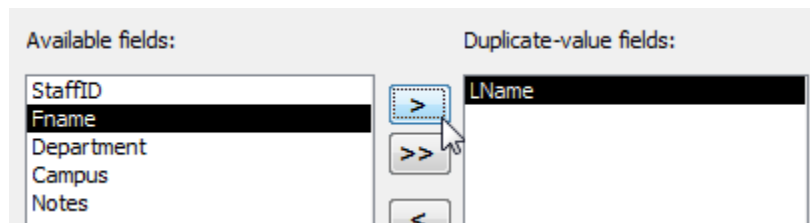
3. Click **OK**. The wizard opens.

In this first (of four) screen you determine if it's a table, query, or both that you want to look through for duplicates. Try clicking the 3 different option buttons.

4. Select the **tblStaff** table.
5. Click **Next**. The next step of the wizard opens.

The second screen, "Which fields might contain duplicate information?" is where we will choose the field that may have duplicate values.


6. From "Available fields:" click the **LName** field.
7. Click the right facing arrow. The LName field is moved to the Duplicate-value fields area.

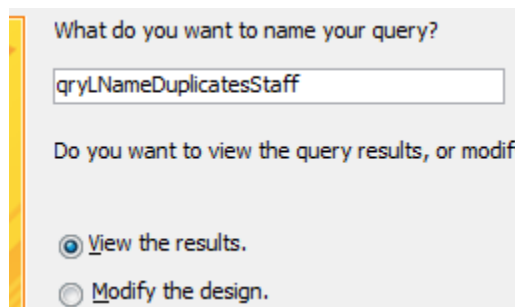


The more fields that you select, the smaller the search results of duplicates will be.

8. Click **Next**. The third screen of the wizard appears.

Do you want to see any additional fields in our results? Bring in all the additional fields just in case they might be needed for reference. This will give us more information for evaluation.

9. Click the double arrows  to bring all five of the other fields into the Additional query fields right-hand window.
10. Click **Next**. The last step of the wizard displays.
11. Rename this query "**qryLNameDuplicatesStaff.**"



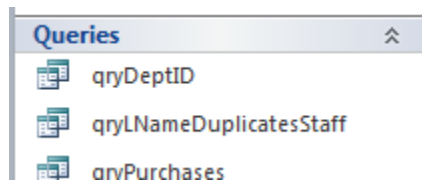
12. Leave the default option "View the results." The query will display in Datasheet view.

13. Click **Finish**. A set of duplicate records are returned for the last name Moore.

Note that the field with the duplicate information is the first column.

This query is displaying live data. If you make any changes to the query data, such as delete records, it will be reflected in the parent table.

14. **Close** the query. The query is added to the query list.



The query is automatically saved so that it can be run again at a later date. This is a select query so our original table, tblStaff and the records within it, have not been affected in any way.

CROSSTAB QUERY

In Access you can create a special kind of query known as a **Crosstab query** which you use to summarize data in a spreadsheet-like format. A Crosstab query is another tool for "breaking out" information. Information is displayed in a row and column format, which makes it easier to analyze. A crosstab query looks like a table. You determine the row and column fields or headers. Where the rows and columns intersect, Access will return a value, such as a count or sum. The crosstab query also gives you an extra calculating column.

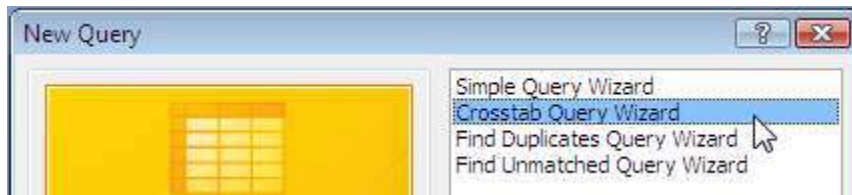
We will set up a Crosstab query that will present us with a table-like look to view the relationship and count of vendors to departmental orders.

To create a Crosstab query using the Wizard:

1. On the Create tab, the Queries group, click the **Query Wizard tool**. The New Query window opens.



2. Select **Crosstab Query Wizard**.



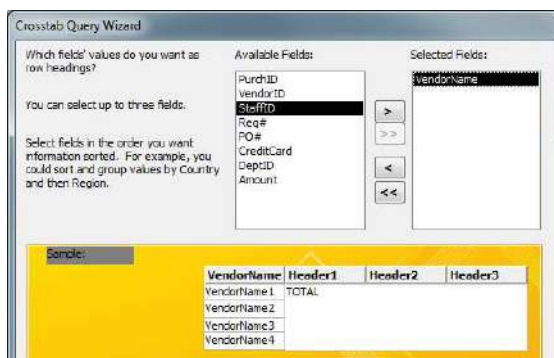
3. Click **OK**. The wizard opens.

In this first (of five) screen you determine if it's a table, query, or both that you wish to build the query from.

4. In the first screen, select the **tblPurchases** table. The tblPurchases table holds the data we wish to analyze.
5. Click **Next**. The next step of the wizard opens.

Use this screen to choose the fields we want for the row headings running horizontally. You may select up to three fields.

6. Select the **VendorName** field. The sample builds.



- Click **Next**. The next step of the wizard opens.

In this third step or screen, choose the column heading or field that will run vertically.

- Select **DeptID**. The Sample Crosstab builds.

Sample:

VendorName	DeptID1	DeptID2	DeptID3
VendorName1	TOTAL		
VendorName2			
VendorName3			
VendorName4			

- Click **Next**. The next step of the wizard opens.

In this fourth screen, Access is looking for the number or calculation result to be returned where the row and columns intersect.

- In the Functions list, select **Count**. This will return a count of the DeptIDs.

Crosstab Query Wizard

What number do you want calculated for each column and row intersection?

For example, you could calculate the sum of the field Order Amount for each employee (column) by country and region (row).

Do you want to summarize each row?

Yes, include row sums.

Fields:

- PurchID
- VendorID
- StaffID
- Req#
- PO#
- CreditCard
- Amount

Functions:

- Avg
- Count
- First
- Last
- Max
- Min
- StDev
- Sum
- Var

Sample:

VendorName	DeptID1	DeptID2	DeptID3
VendorName1	Count(PurchID)		
VendorName2			
VendorName3			
VendorName4			

Cancel < Back Next > Finish

Leave the checkbox for including row sums checked. That will generate an extra summary column.

- Click **Next**. The last step of the wizard opens.

12. Name the qry **qryVendorName_Crosstab**.

13. Click **Finish**. The resulting Crosstab query displays.

The vendor names are represented in the rows, and the DeptIDs are represented in the columns. The number calculated at the row and column intersection is the total for the various DeptIDs.

Let's clean this up before we close it. Notice the second column heading, "Total of PurchID," is not clear. This is a default, what Access has assigned until you change it. We'll change the second column heading to "Total of DeptID."

14. To toggle to Design view, on the Home tab, click the **View tool**. The query displays in Design view.

15. Click in the in the fourth column in the Field row of the QBE grid that begins "Total of PurchID."

16. Double-click the first instance of the word "PurchID." PurchID is selected.

Field:	[VendorName]	[DeptID]	[PurchID]	Total Of PurchID: ▾
Table:	tblPurchases	tblPurchases	tblPurchases	tblPurchases
Total:	Group By	Group By	Count	Count
Crosstab:	Row Heading	Column Heading	Value	Row Heading
Sort:				

17. Type the word **DeptID**.

18. Click the **View tool**. The query displays in Datasheet view and the summary column is adjusted.

19. Resize the Total of DeptID column as needed.

We can now close the qryVendorName_Crosstab: Crosstab query.

20. Click the **close** button. The query closes

21. Select **Yes**. The design changes are saved.

MOVING DATA TO AND FROM EXCEL


Data collected in Access may need to be moved to Excel and Excel data may need to be moved into Access. Excel's number crunching capabilities can be utilized and then the data can be returned to Access.

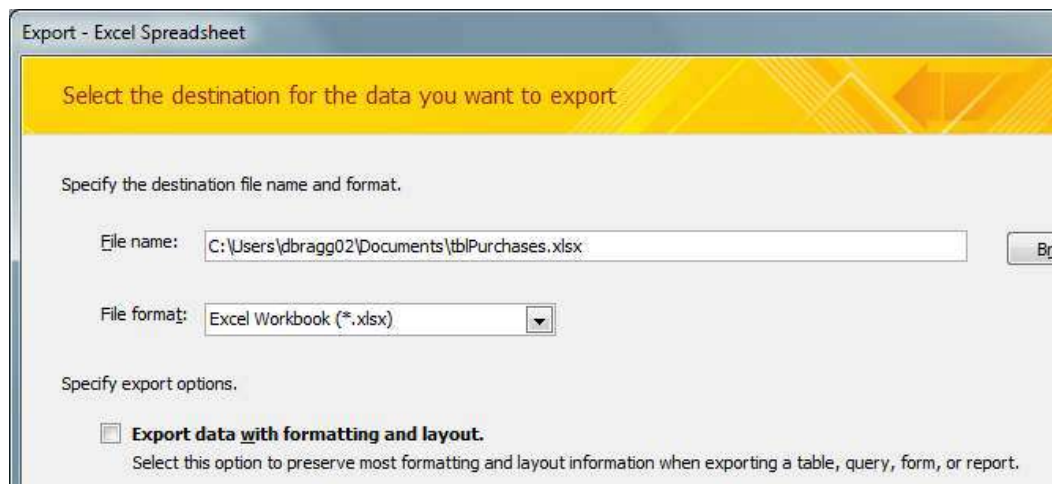
EXPORTING DATA TO EXCEL

You can export table or query data to Excel. When exporting data to Excel, a copy of the data is exported.

The following steps will guide you through the processes of exporting Access data to Excel. We will export a copy of the Purchases table to Excel.

To export Access data to Excel:

1. In the Navigation Pane, select the **tblPurchases** table (the object that contains the data that you want to export).
2. On the External Data tab, in the Export group, click **Excel**.  The Export – Excel Spreadsheet wizard opens.



3. In the File name field, accept the suggested name for the Excel workbook (Access uses the name of the source object), or rename the file.

4. In the File Format field, accept the suggested file format or select another Excel format.
5. Click **OK**. The file is exported and the Save Export Steps window displays.
6. Click **Close**.
7. To view the new Excel data, **open** the Excel file.



Note: You can also drag and drop the table into Excel. This can be accomplished by dragging the table from the Navigation Pane onto the Excel icon on the Taskbar (Excel should already be open), wait until Excel opens, and then drag/drop the table into the appropriate cell.

IMPORTING DATA FROM EXCEL

You may import Excel data into a new or existing Access table. In Access 2010, you can now import in one operation using the Import Wizard to walk you through the import steps.

If you encounter errors during the import, Access alerts you. For example, there may be a duplicate ID in a primary key field. You can either make the changes in the Excel workbook and re-import the data, or make the changes in the new Access table.

Access stores the imported data without altering the Excel data.

The following steps will guide you through the processes of importing Excel data into Access. We will import an additional list of staff into our Access database. Before beginning the import process:

1. Check the Excel table data (in our case, the MoreStaff Excel file). Make sure that:
 - a) All of the columns have headers.
 - b) There are no blank or empty rows.
 - c) The column data is consistent (i.e. all numeric or all dates).
2. **Open** the More Staff Excel file in the class files folder.
3. Check the data.
4. **Close** the Excel file.

Note that any existing Excel formulas will not import.

To import Excel data into Access:

5. In Access, on the External Data Tab, in the Import & Link group, click **Excel**. The Get External Data — Excel Spreadsheet window opens.



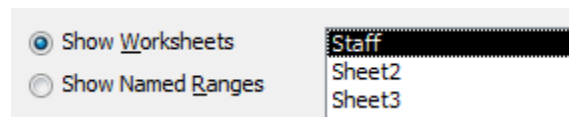
6. In the File name field, click **Browse**. The File Open window opens.
7. Navigate to the Excel file (in our case, MoreStaff) and click **Open**. The file path appears in the File name field.

8. Select the first option, **Import the source data into a new table in the current database.**

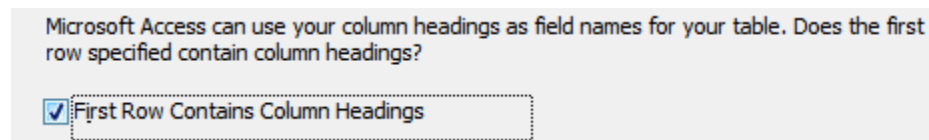
Selecting the second choice, Append a copy..., would merge the Excel records into an existing Access table, such as tblStaff, which we did earlier using an append query.

9. Click **OK**. The first Import Spreadsheet Wizard window opens.
10. Select the worksheet that you want to import (we have only one) and click **Next**. The next step of the wizard opens.

If more worksheets existed in the Excel workbook, it might look like this:



11. In this window, check to make sure that the “First Row Contains Column Headings” check box is selected and click **Next**. The next step of the wizard opens.



The Excel column headers will become the Access field names.

The third window of the wizard provides customization options. The field options are:

Field Name: If you need to change any column names, click the column and enter a new name in the Field Name box.

Data Type: You can set a data type for each field, though Access will do that for you. In Access, data types control what you can enter into a field. For example, you can't enter text in a field set to contain numbers, and that helps keep your data accurate.

Indexed: If you search a column frequently, and that column has a lot of data, click the column, and from the Indexed list, select Yes. Indexing a column can make it easier and faster to find data.

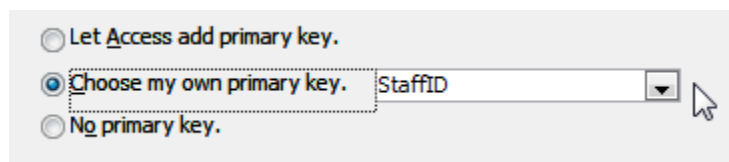
Do not import field: If you want to remove a column or columns from the import operation, click the column and select the Do not import field (Skip) check box.

12. After making any changes, click **Next**. The next step of the wizard opens.

Primary keys are important because they make each row or record in the table unique, and that helps ensure accuracy in your data because you can't enter duplicate information.

If you wish to have the wizard create a primary key, accept the default "Let Access add primary key." You may also choose to have no primary key. We will use an existing column, StaffID, which has unique entries, as our primary key.

13. Select **Choose my own primary key** and select the **StaffID** field.



14. Click **Next**. The last step of the wizard opens.

15. In the Import to Table field, type a name for the new table (i.e. tblMoreStaff).

16. Click **Finish**. The Save Import Steps window opens.

17. Click **Close**. The table is added to the table list.

18. As a final step of safety, **open** the new table in Access and review the data. Does it have any errors? Did all the records import? How is the formatting?

19. **Close** the tblMoreStaff table.